Weatherford®

CML MESSINGER SHUTTLE NEUTRON / DENSITY POROSITY LOG

COMPANY	WHITING OIL AND GAS CORPORATION
WELL	RAZOR 26-2306B
FIELD	REDTAIL
PROVINCE/COUNTY	WELD
COUNTRY/STATE	U.S.A. / COLORADO
LOCATION	SHL: 2373' FSL & 1948' FWL

SEC	TWP	RGE	Other Services
26	10N	58W	

API Number 05-123-37878
Permit Number

Permanent Datum G.L., Elevation 4737 feet
Log Measured From KB
Drilling Measured From KB

Elevations:	feet
KB	4759.50
DF	4759.50
GL	4737.00

Date	22-JAN-2014			
Run Number	1			
Service Order	3795-77499695			
Depth Driller	13220.00	feet		
Depth Logger	12661.00	feet		
First Reading	12591.00	feet		
Last Reading	6087.00	feet		
Casing Driller	6088.00	feet		
Casing Logger	6087.00	feet		
Bit Size	6.000	inches		
Hole Fluid Type	WATER BASED			
Density / Viscosity	10.50 g/c3	45.00 CP		
PH / Fluid Loss	9.80	19.00 ml/30Min		
Sample Source	MUD PIT			
Rm @ Measured Temp	1.30 @ 56.0	ohm-m		
Rmf @ Measured Temp	0.98 @ 56.0	ohm-m		
Rmc @ Measured Temp	1.63 @ 56.0	ohm-m		
Source Rmf / Rmc	CALC	CALC		
Rm @ BHT	0.35 @216.0	ohm-m		
Time Since Circulation	1 HOUR			
Max Recorded Temp	216.00	deg F		
Equipment / Base	18004	S.A.		
Recorded By	MICHAEL RYAN			
Witnessed By	PETER BUCKNAM			
	RIG: FRONTIER 26			

REMARKS

LOGGED USING 13.04.8723

ANNULAR VOLUME CALCULATED WITH 4.5 INCH CASING.

POROSITY CALCULATED USING SANDSTONE MATRIX (2.71 gm/cc).

WELL WAS LOGGED WITH THE COMPACT WELL SHUTTLE SYSTEM.

LOG INTERVALS FROM TD - CASING SHOE AS PER CUSTOMER REQUESTED

DEPTH WAS RECORDED WITH THE WEATHERFORD PASON AQUISITION SYSTEM.

THE DEPTH WAS CORRECTED TO THE DRILLERS STRAP.

HARDWARE: SEE THE TOOL DIAGRAM.

LAT: 40.808886 LON: -103.834644

BIT DEPTH DURRING DEPLOYMENT 12,490 FT

TOOL DEPTH AFTER DEPLOYMENT 12,597 FT

THANK YOU FOR USING "WEATHERFORD".

BOREHOLE RECORD

Last Edited: 22-JAN-2014 20:36

Bit Size inches	Depth From feet	Depth To feet
6.000	6088.00	13385.00

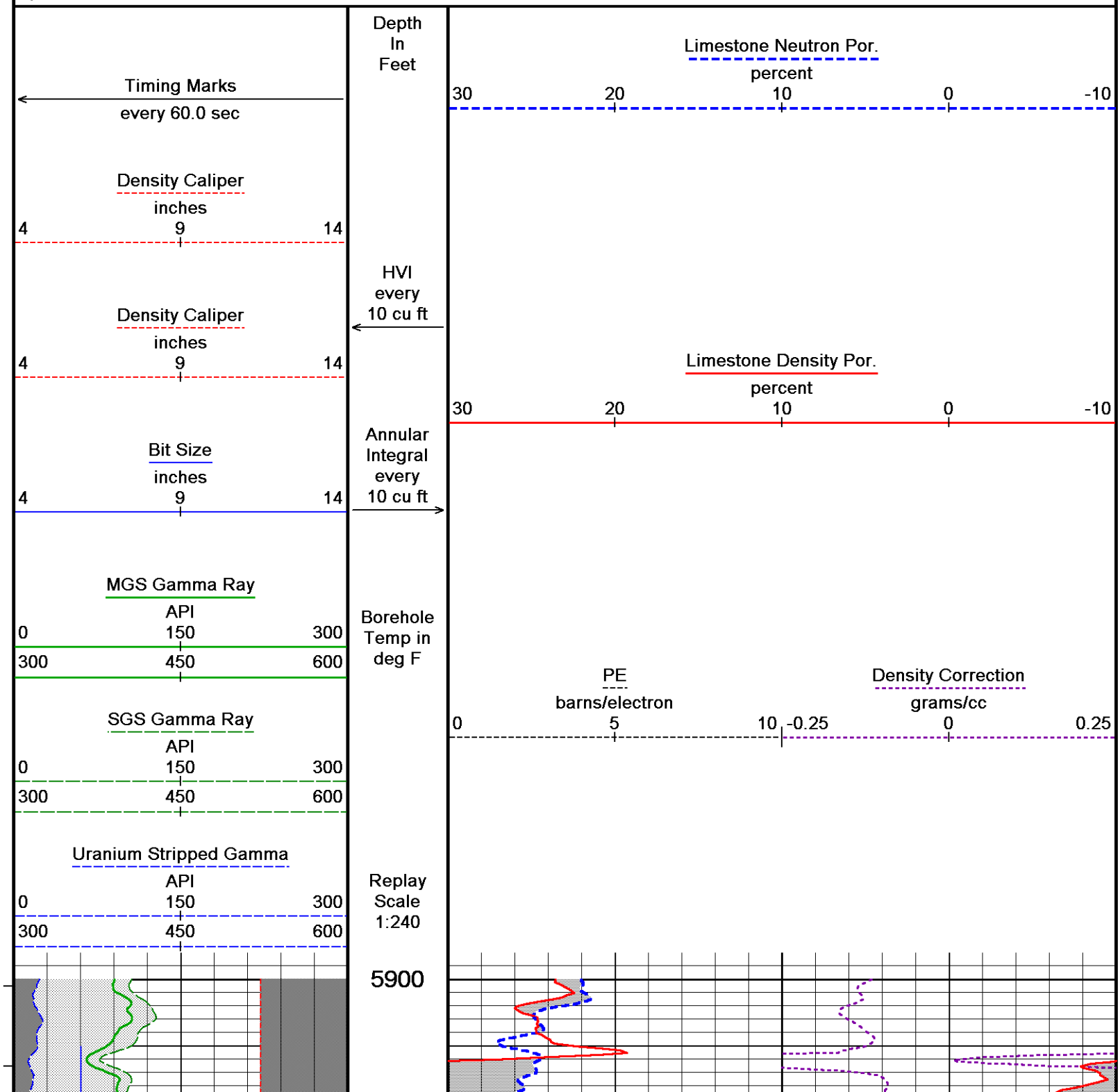
CASING RECORD

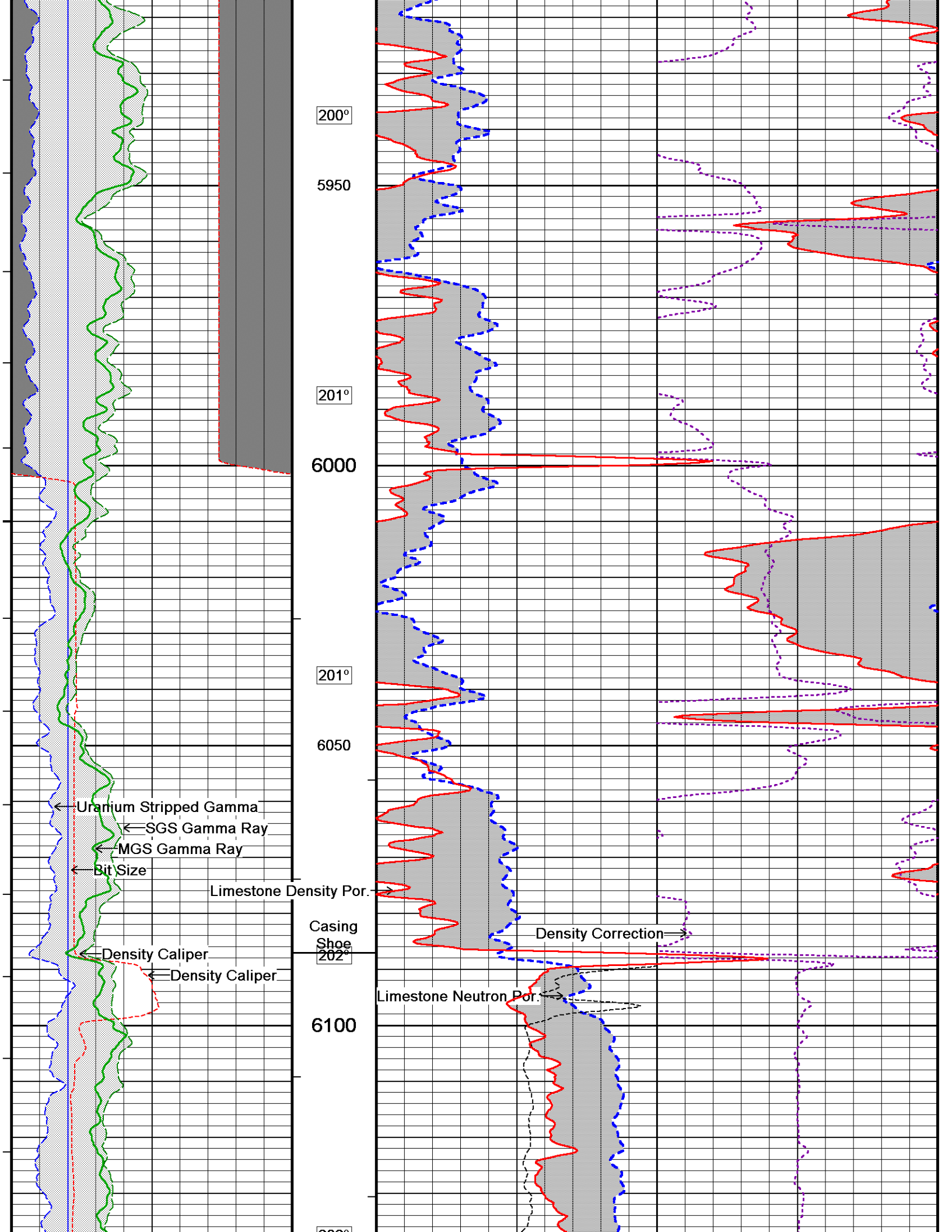
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
	7.000	0.00	6087.00	24.00

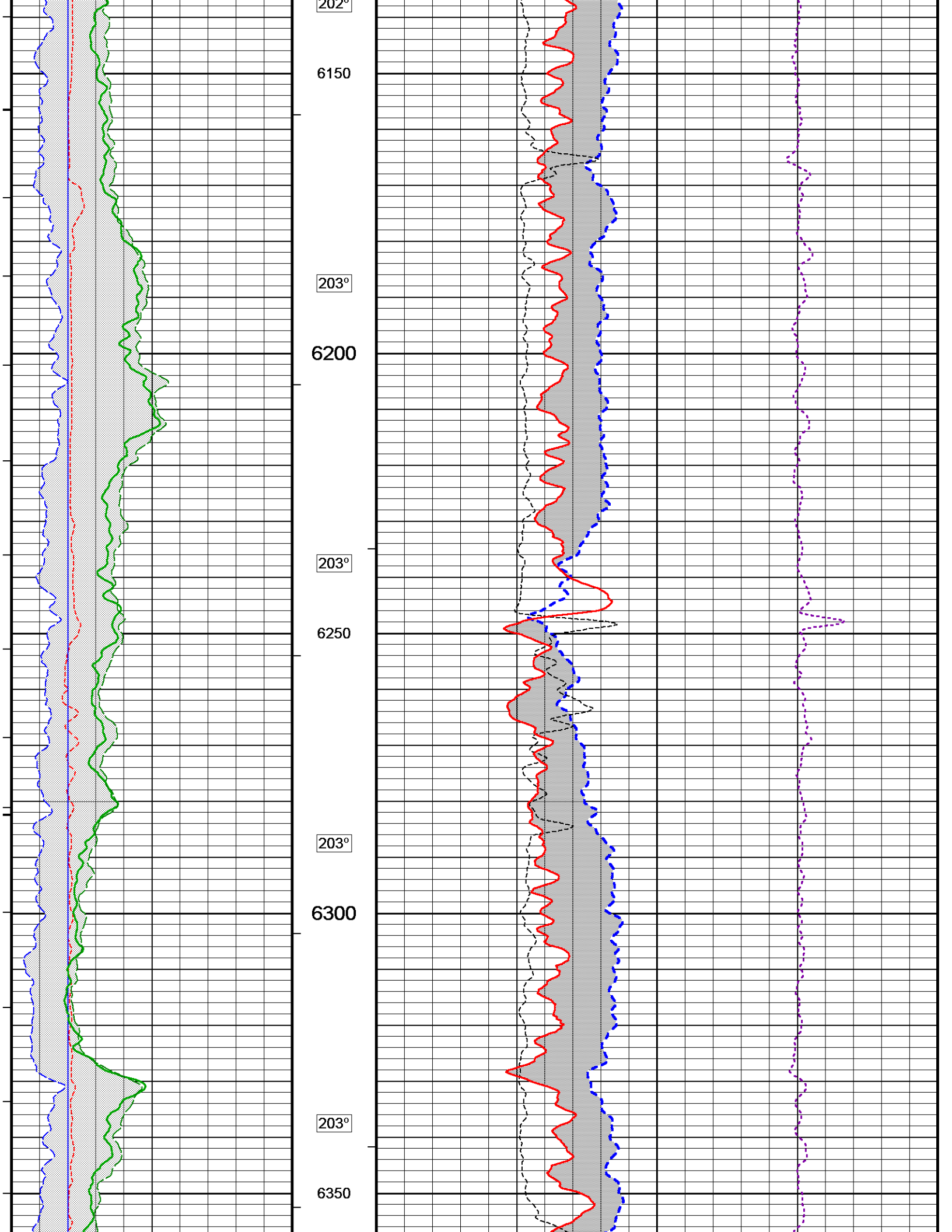
CWS MEMORY LOG DSC

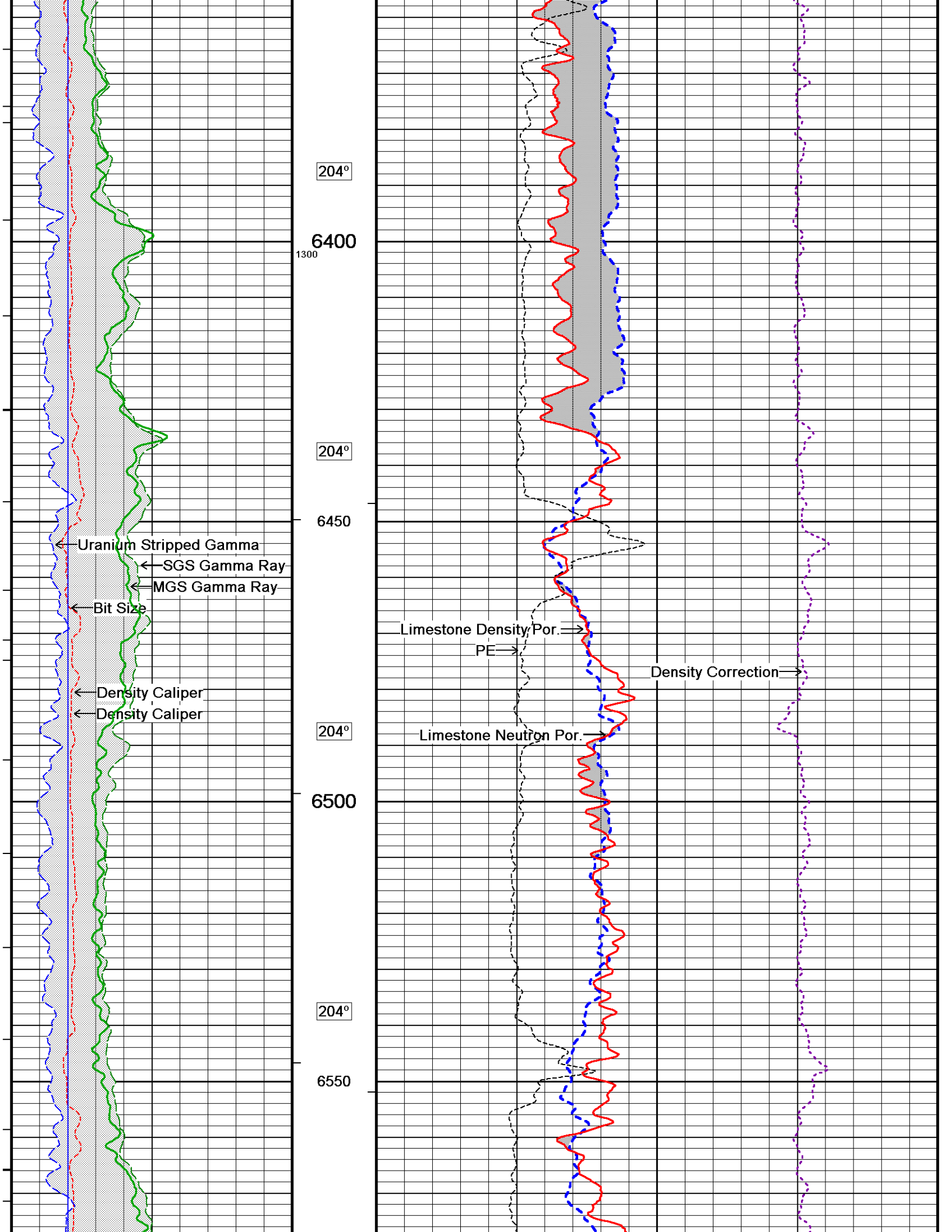
Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: F:\Razor 26k-2306b\cmitsgs_008.dta
System Versions: Processed with 13.04.8723 Plotted with 13.04.8723

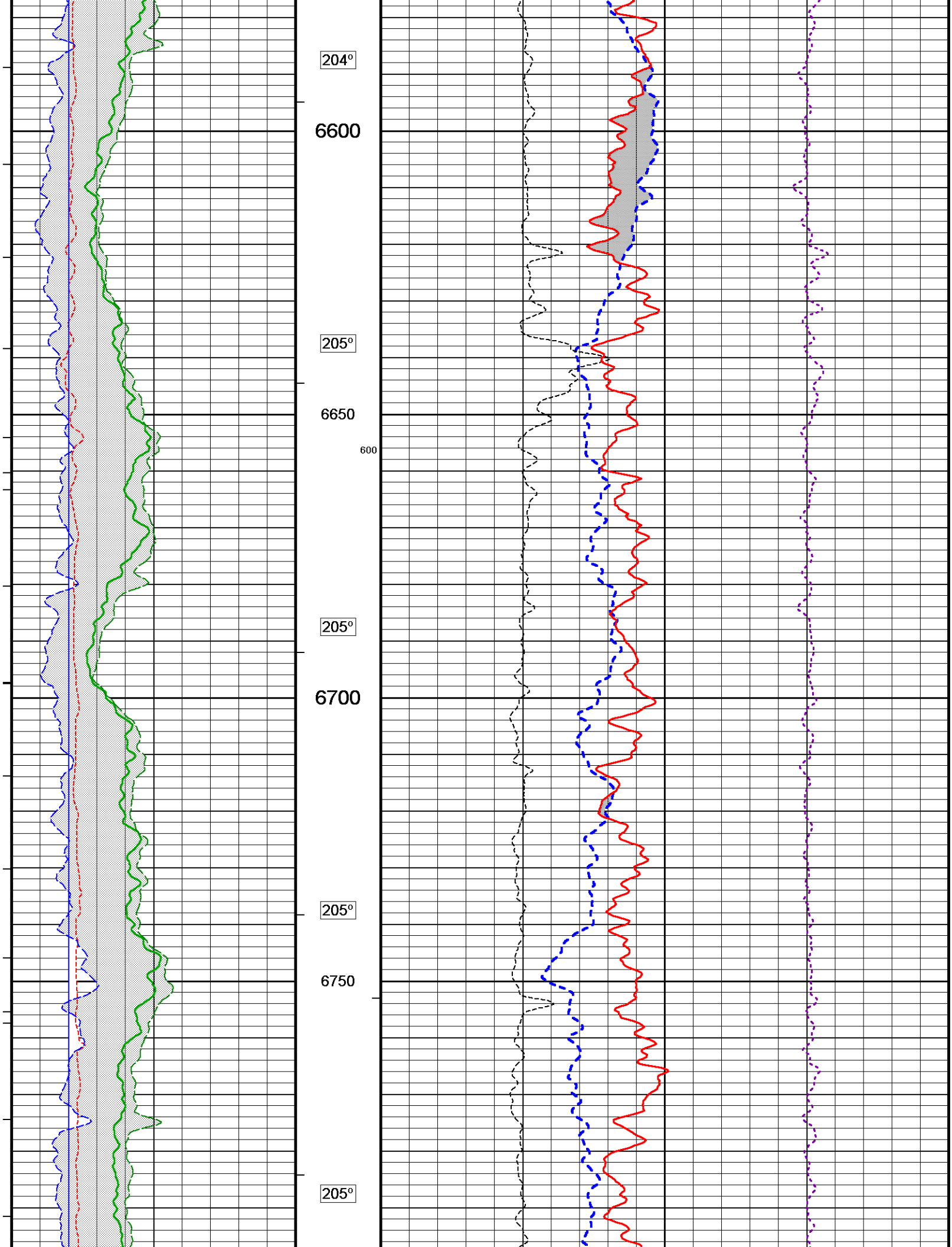
Plotted on 23-JAN-2014 16:03
Recorded on 22-JAN-2014 21:22

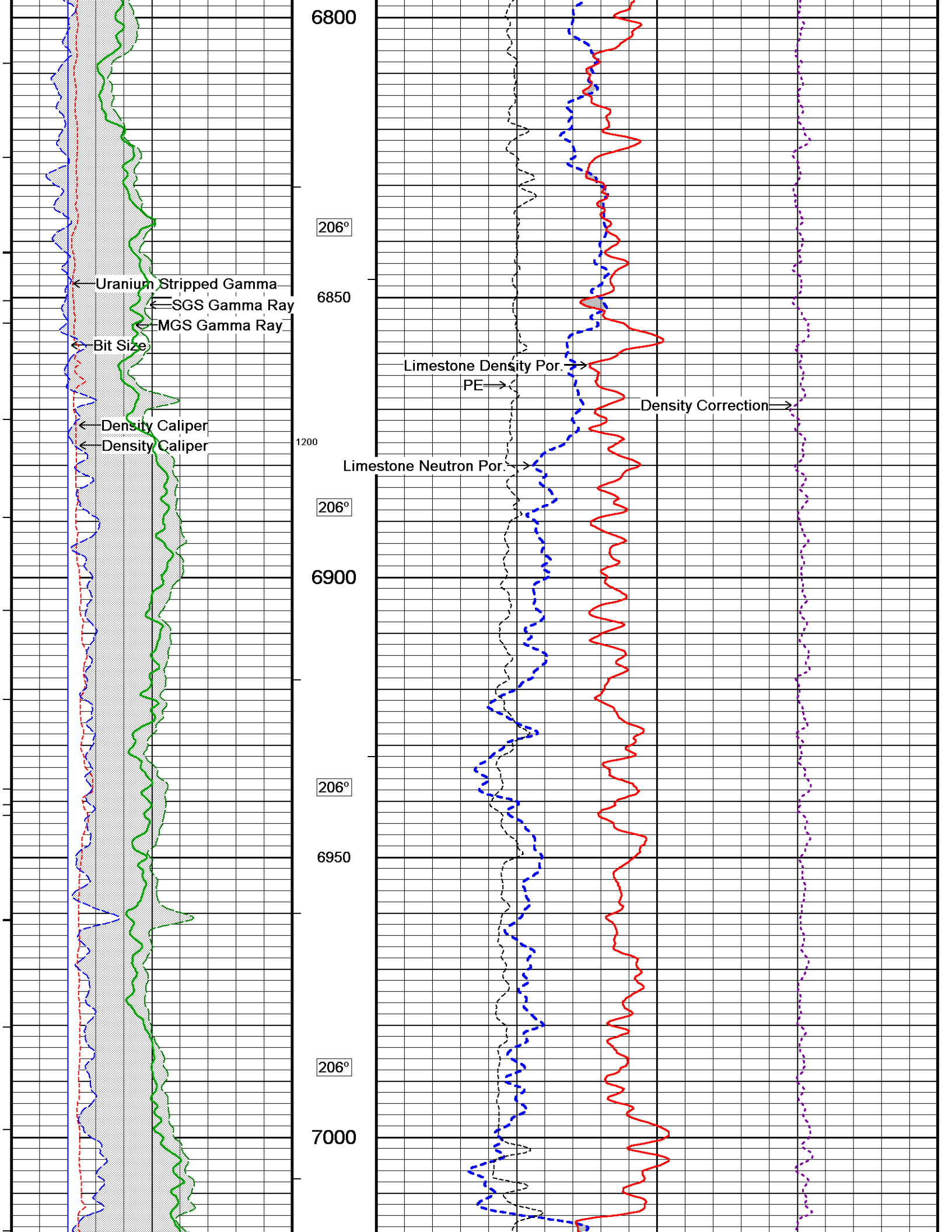


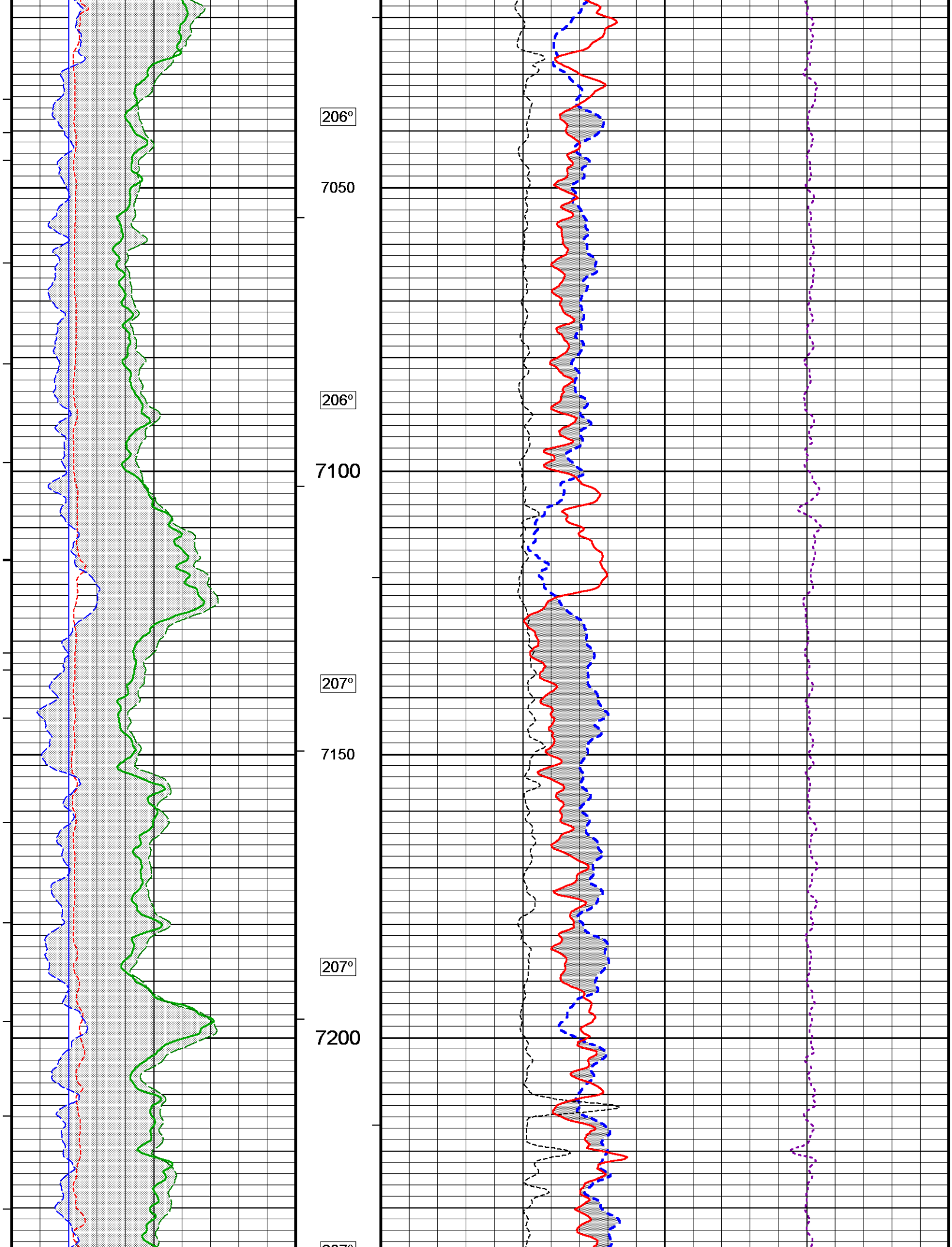

200°
5950
201°
6000
201°
6050
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Limestone Density Por.
Casing Shoe
202°
Density Caliper
Density Caliper
Density Correction
Limestone Neutron Por.
6100

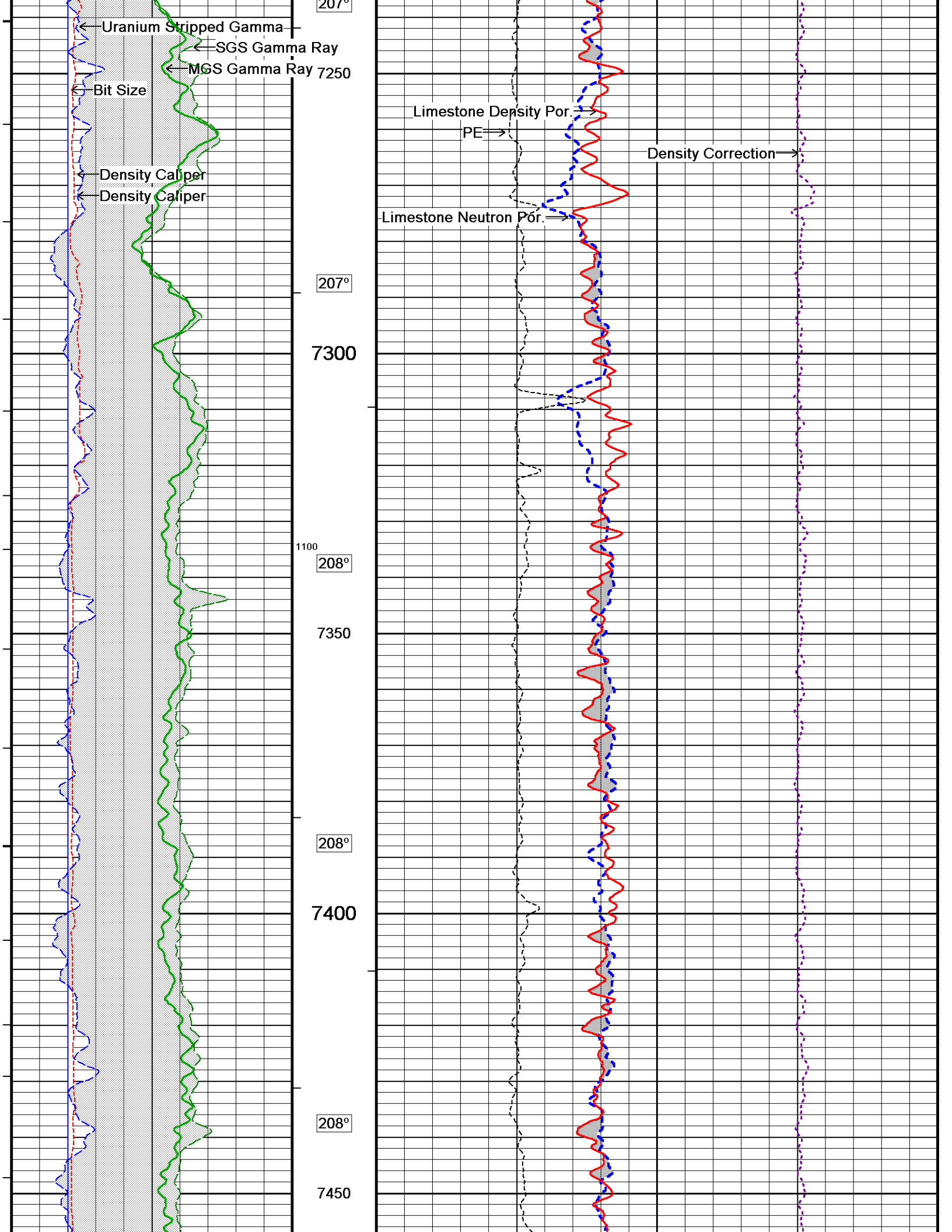

202°
6150
203°
6200
203°
6250
203°
6300
203°
6350

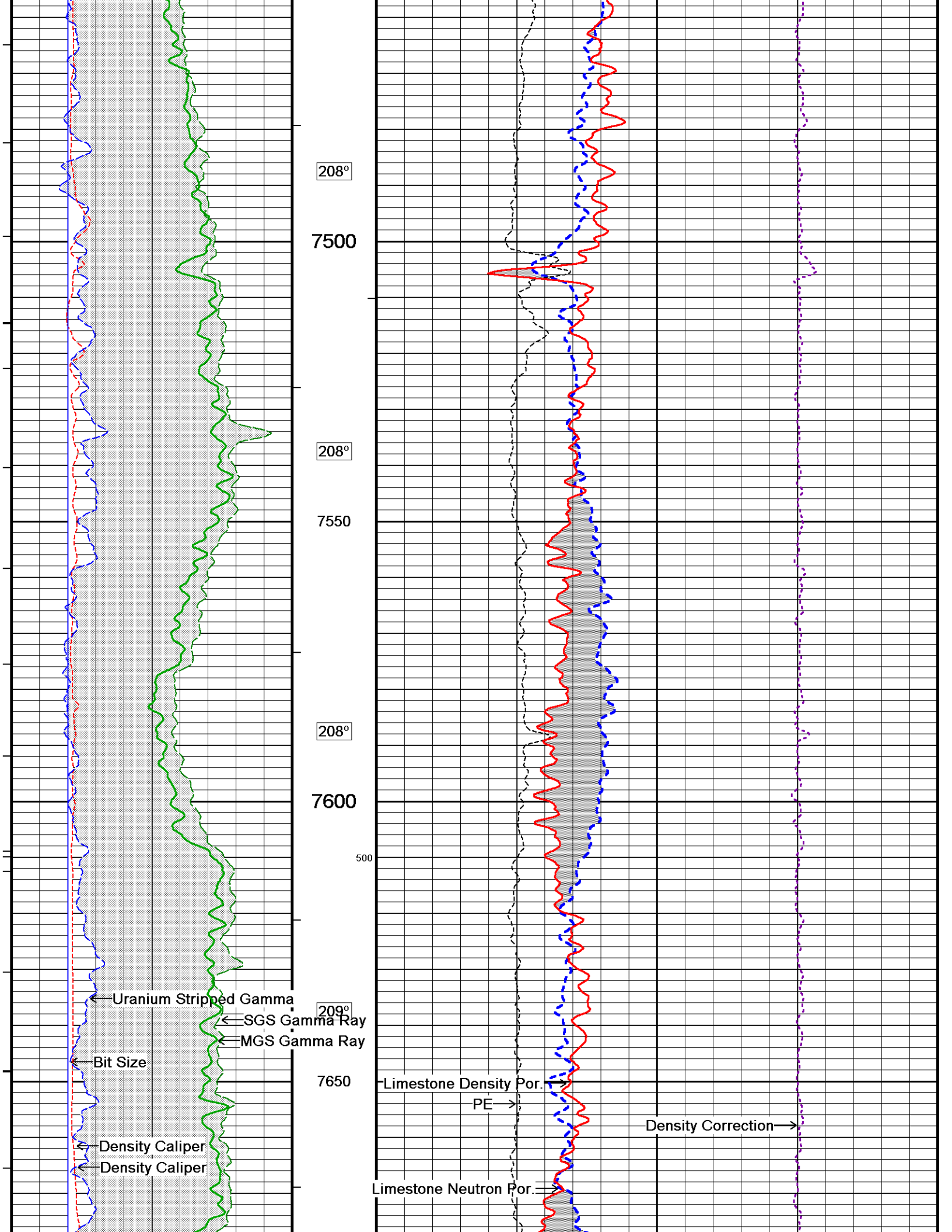

204°
6400
1300
204°
6450
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
204°
6500
204°
6550
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.

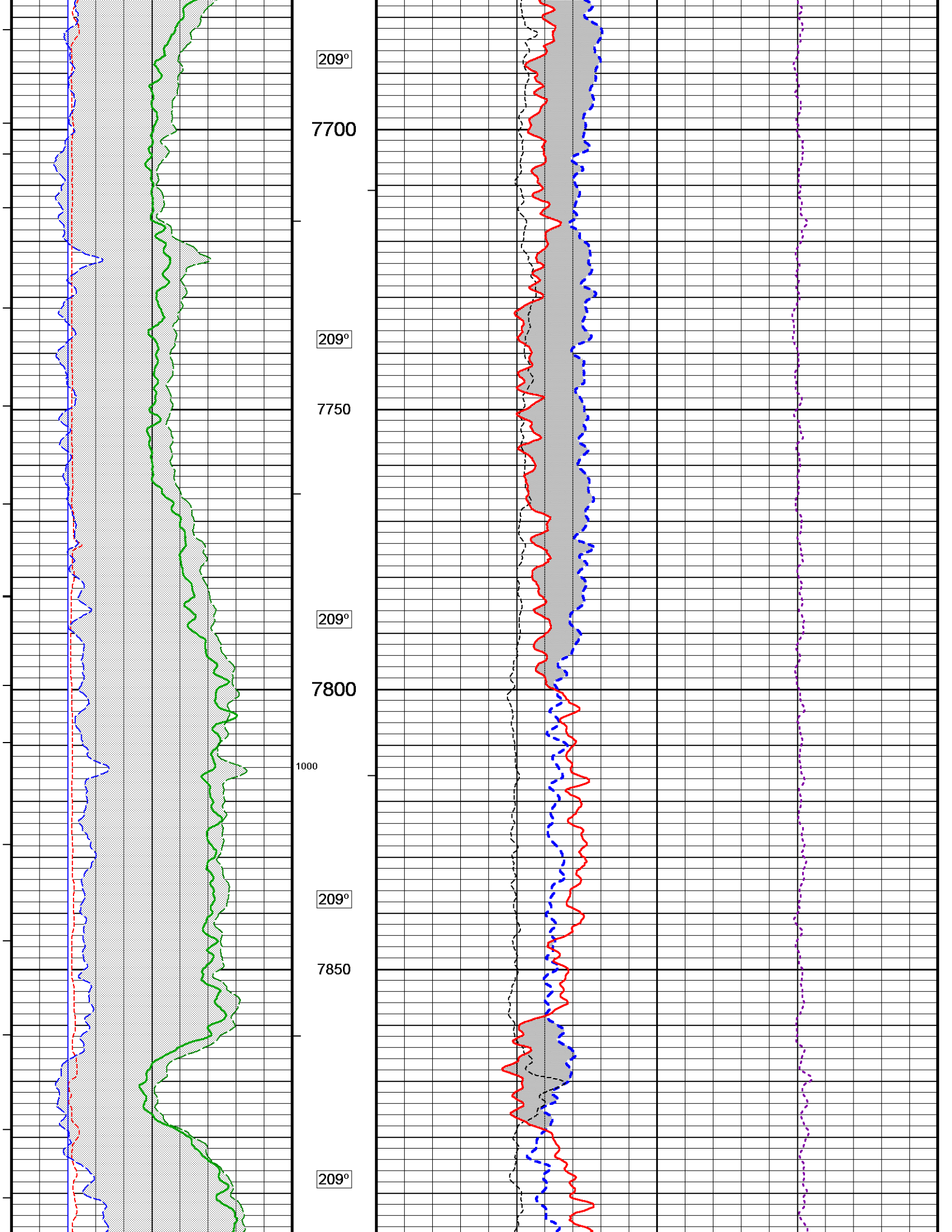

204°
6600
205°
6650
600
205°
6700
205°
6750
205°


6800
206°
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
6850
Limestone Density Por.
PE
Density Correction
Density Caliper
Density Caliper
1200
Limestone Neutron Por.
206°
6900
206°
6950
206°
7000


206°
7050
206°
7100
207°
7150
207°
7200


207°
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
7250
Bit Size
Limestone Density Por.
PE
Density Correction
Density Caliper
Density Caliper
Limestone Neutron Por.
207°
7300
1100
208°
7350
208°
7400
208°
7450


208°
7500
208°
7550
208°
7600
500
209°
7650
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.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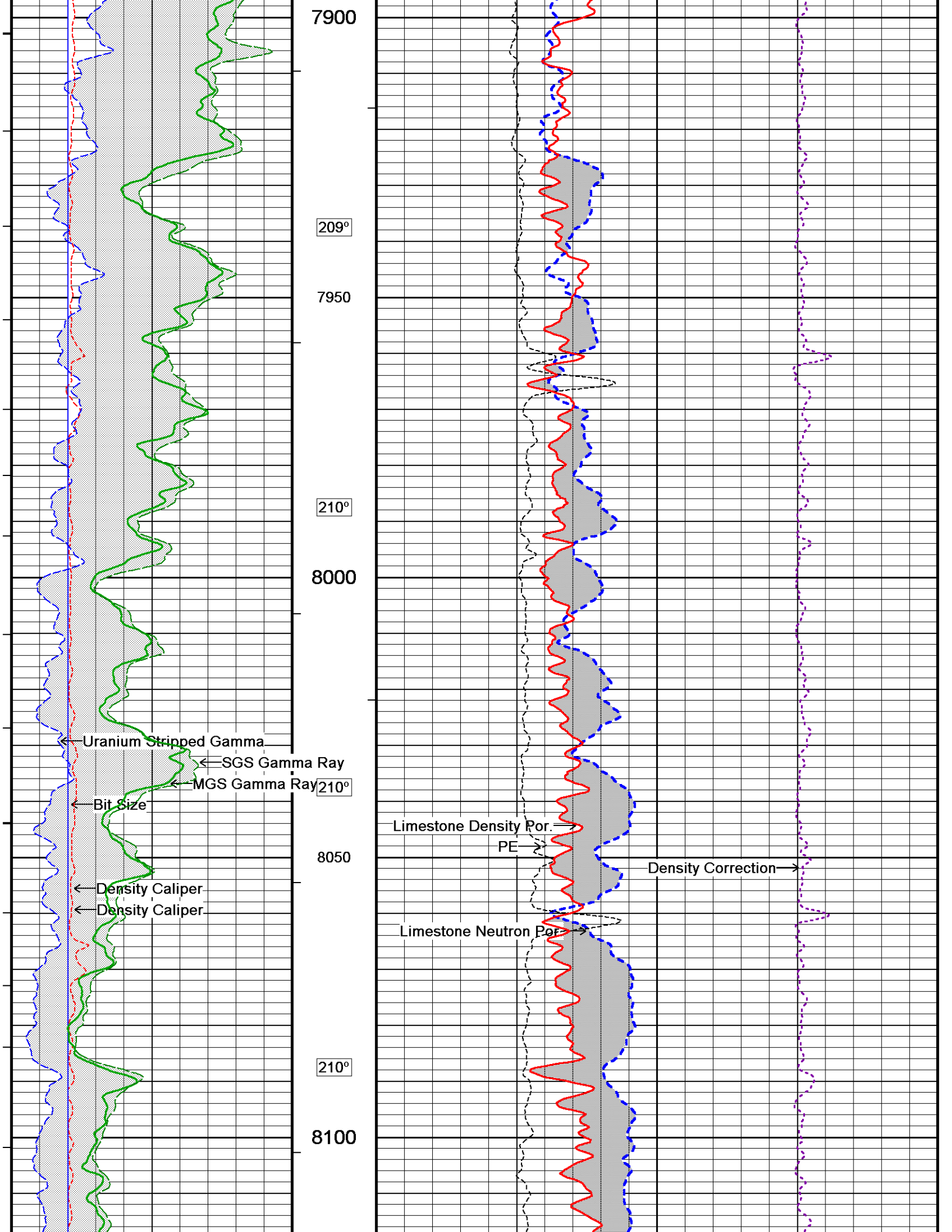
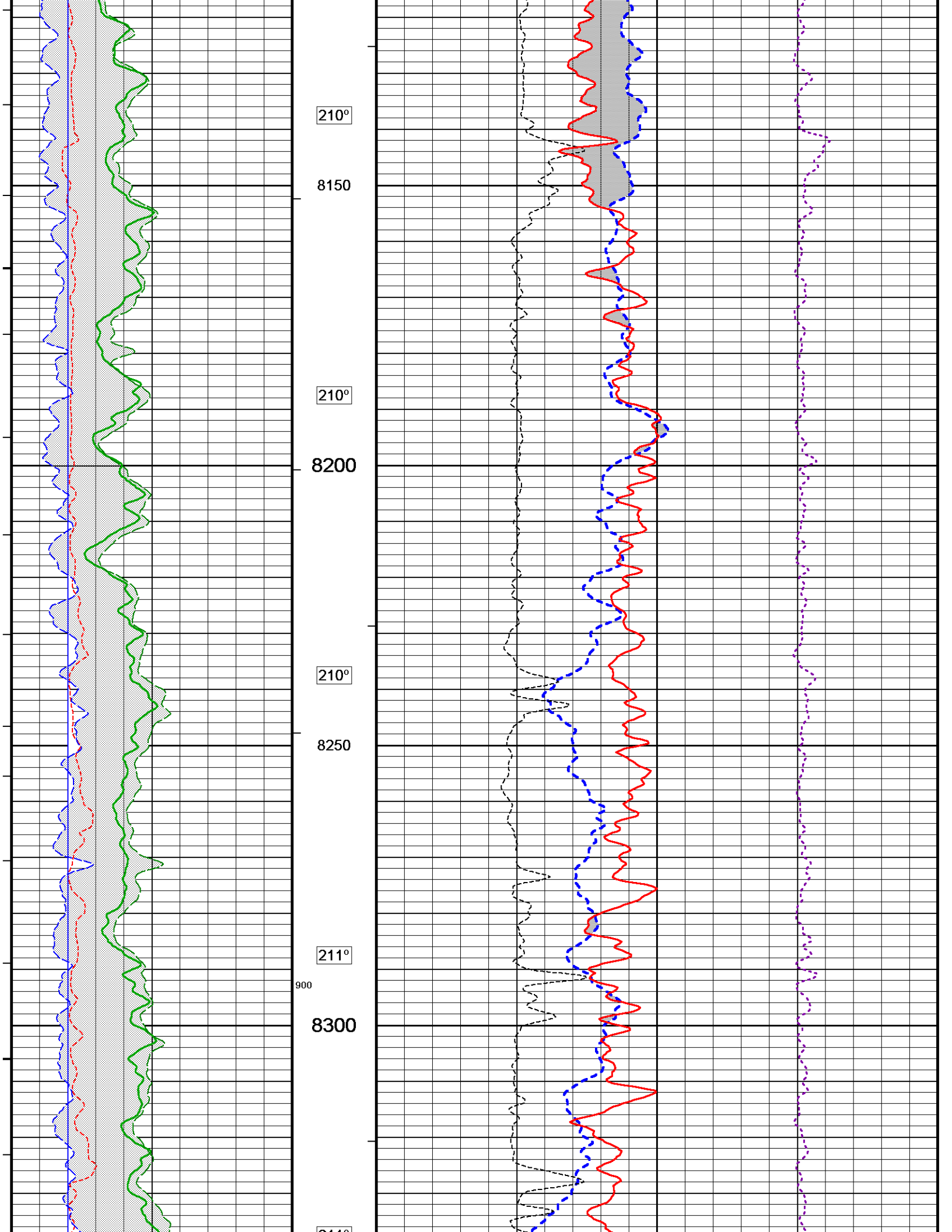
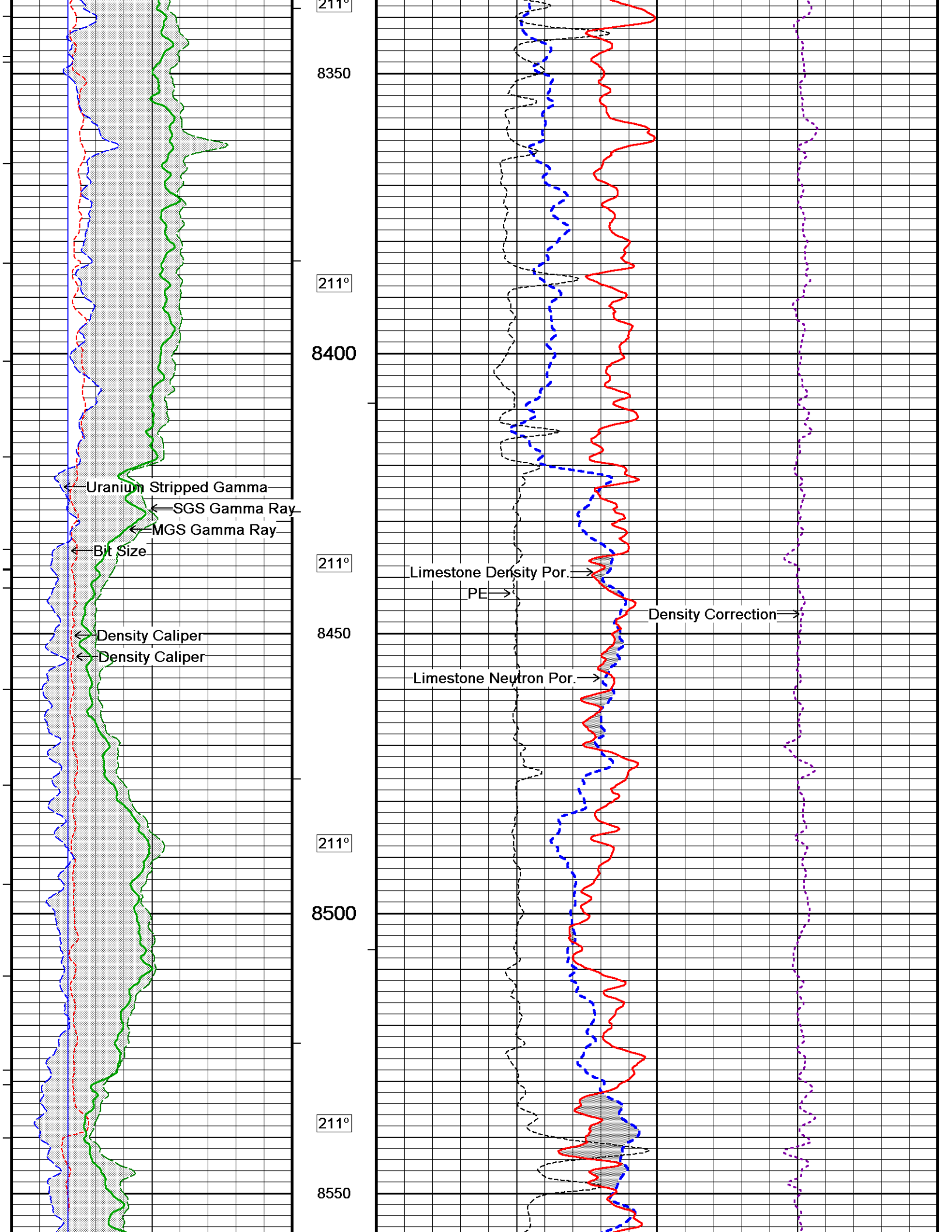
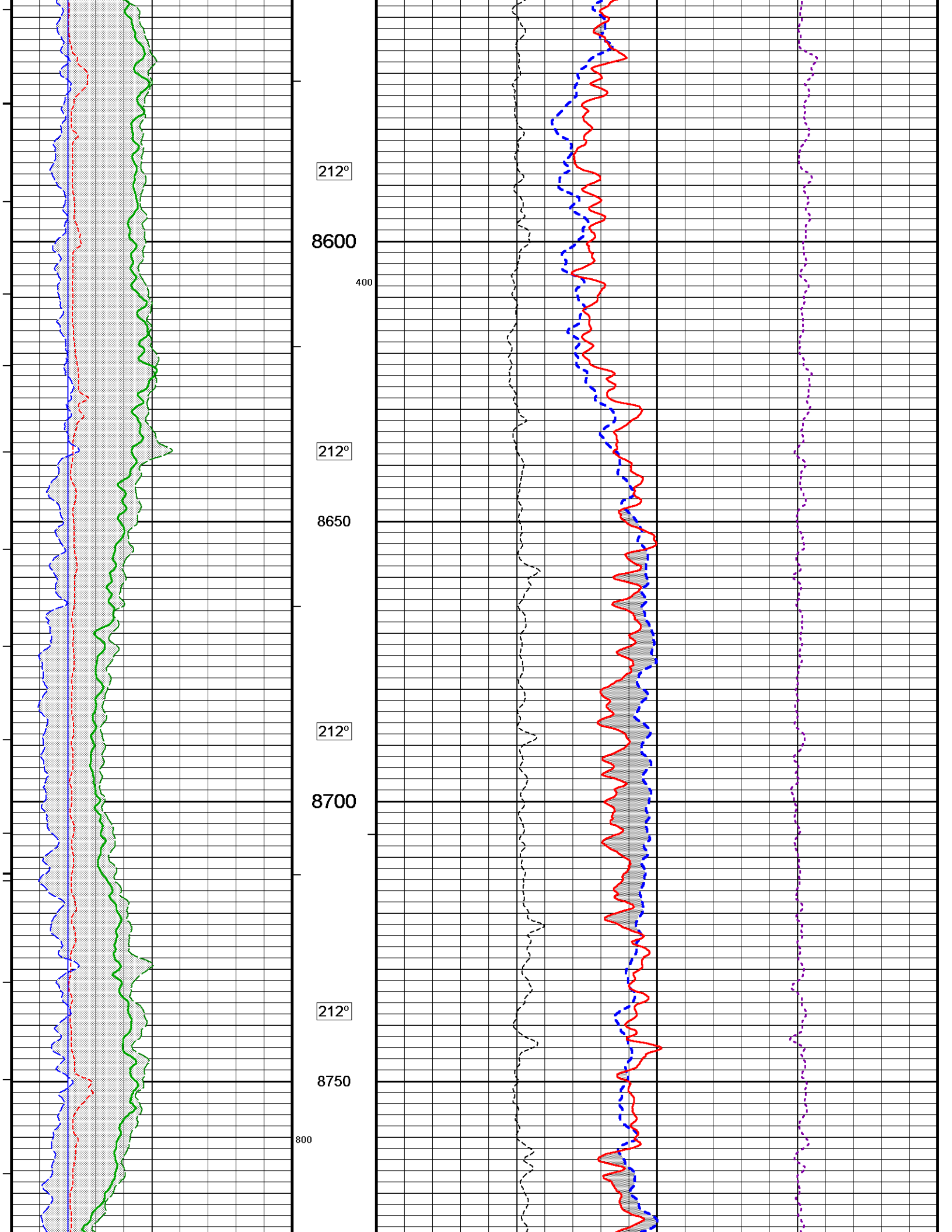
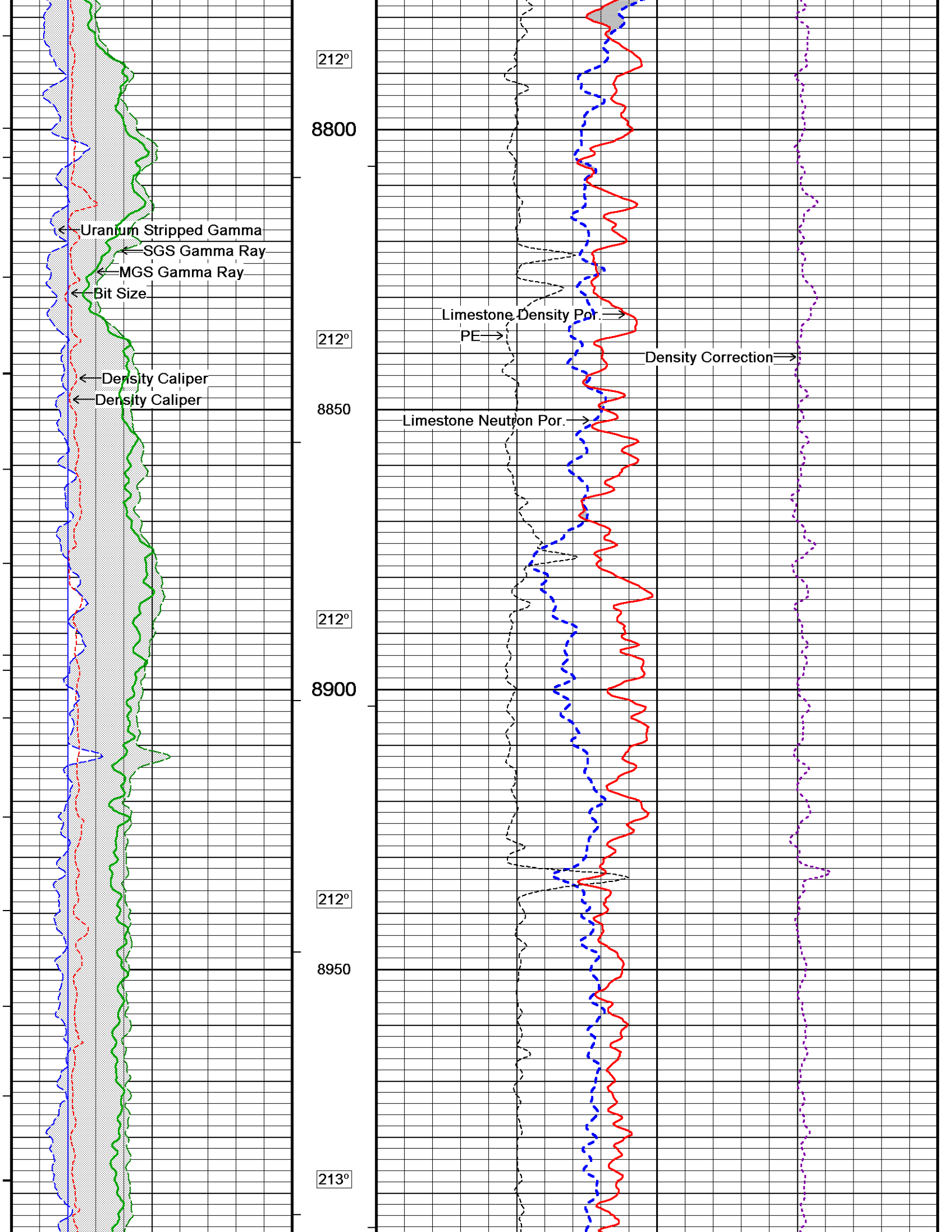
7700
209°
7750
209°
7800
1000
209°
7850
209°

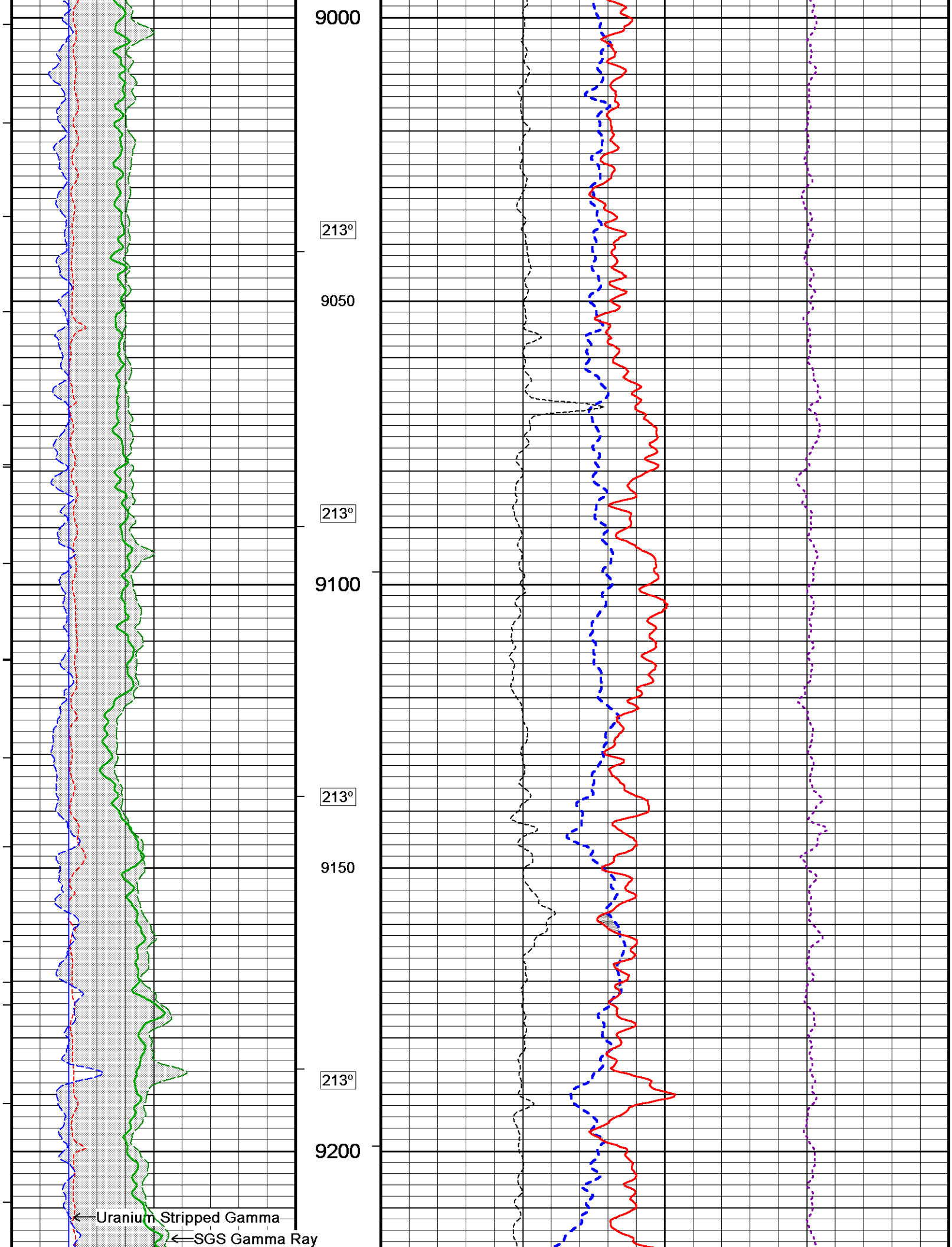

7900
209°
7950
210°
8000
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
210°
Bit Size
Limestone Density Por.
PE
8050
Density Correction
Density Caliper
Density Caliper
Limestone Neutron Por.
210°
8100

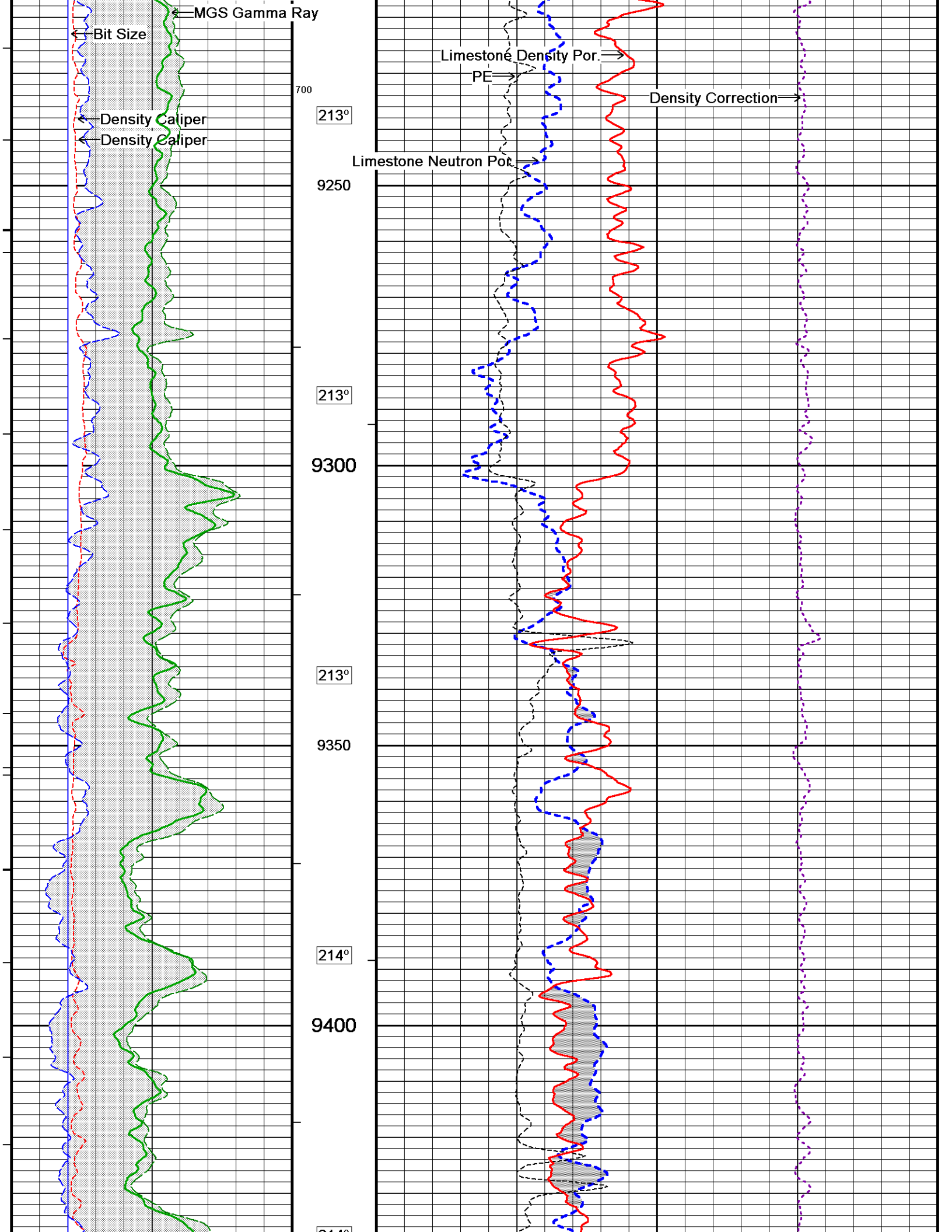

210°
8150
210°
8200
210°
8250
211°
900
8300

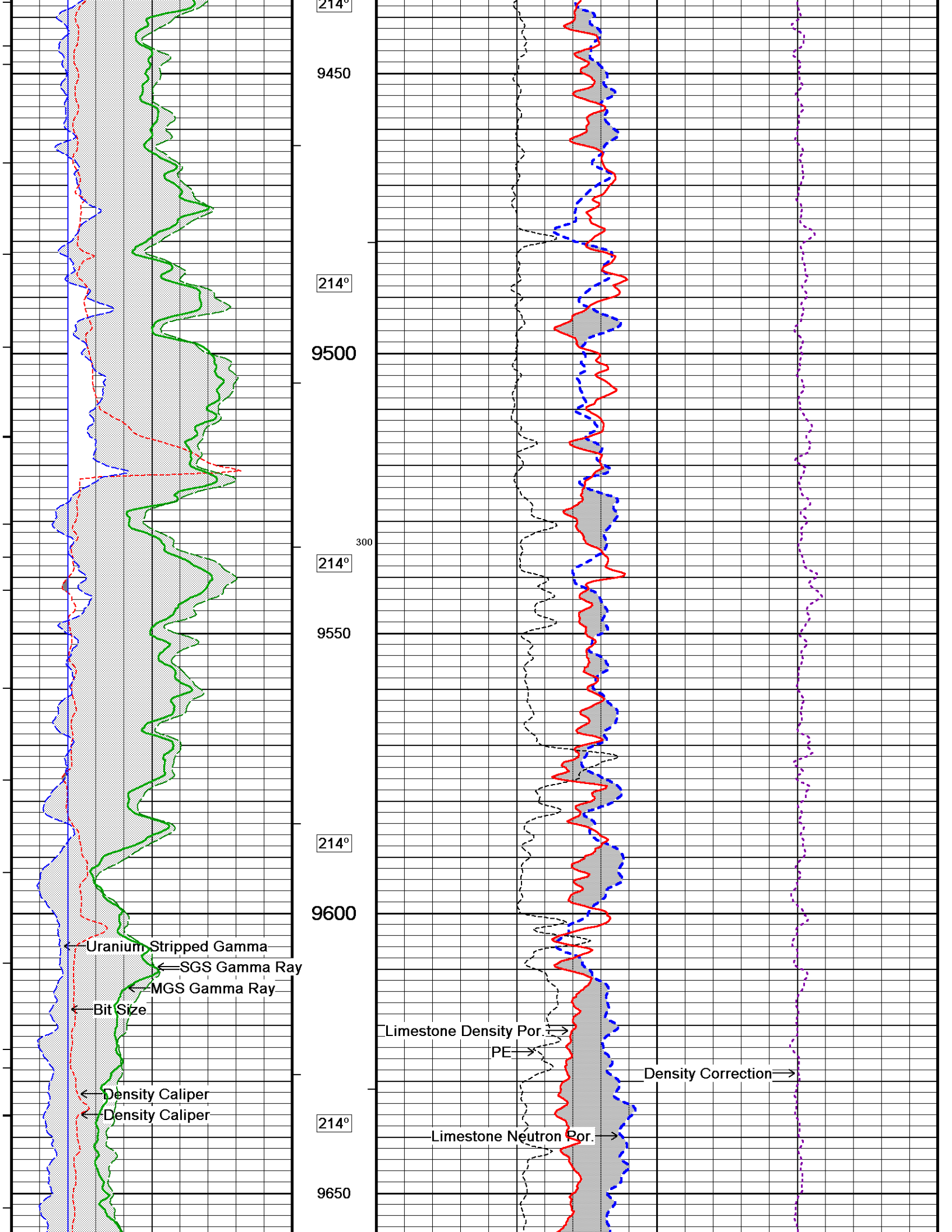

211°
8350
211°
8400
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
211°
Limestone Density Por.
PE
Density Correction
8450
Density Caliper
Density Caliper
Limestone Neutron Por.
211°
8500
211°
8550

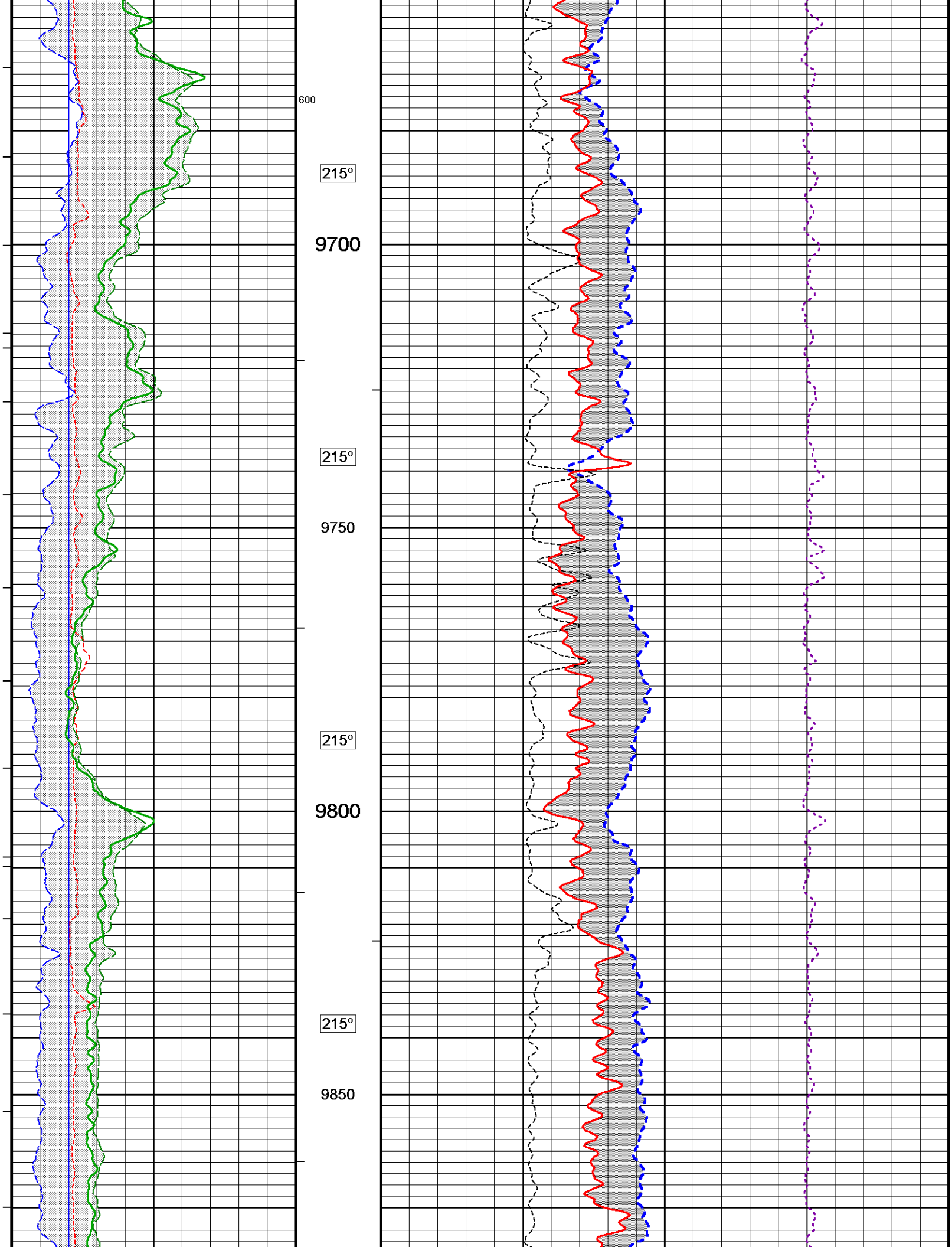

212°
8600
400
212°
8650
212°
8700
212°
8750
800

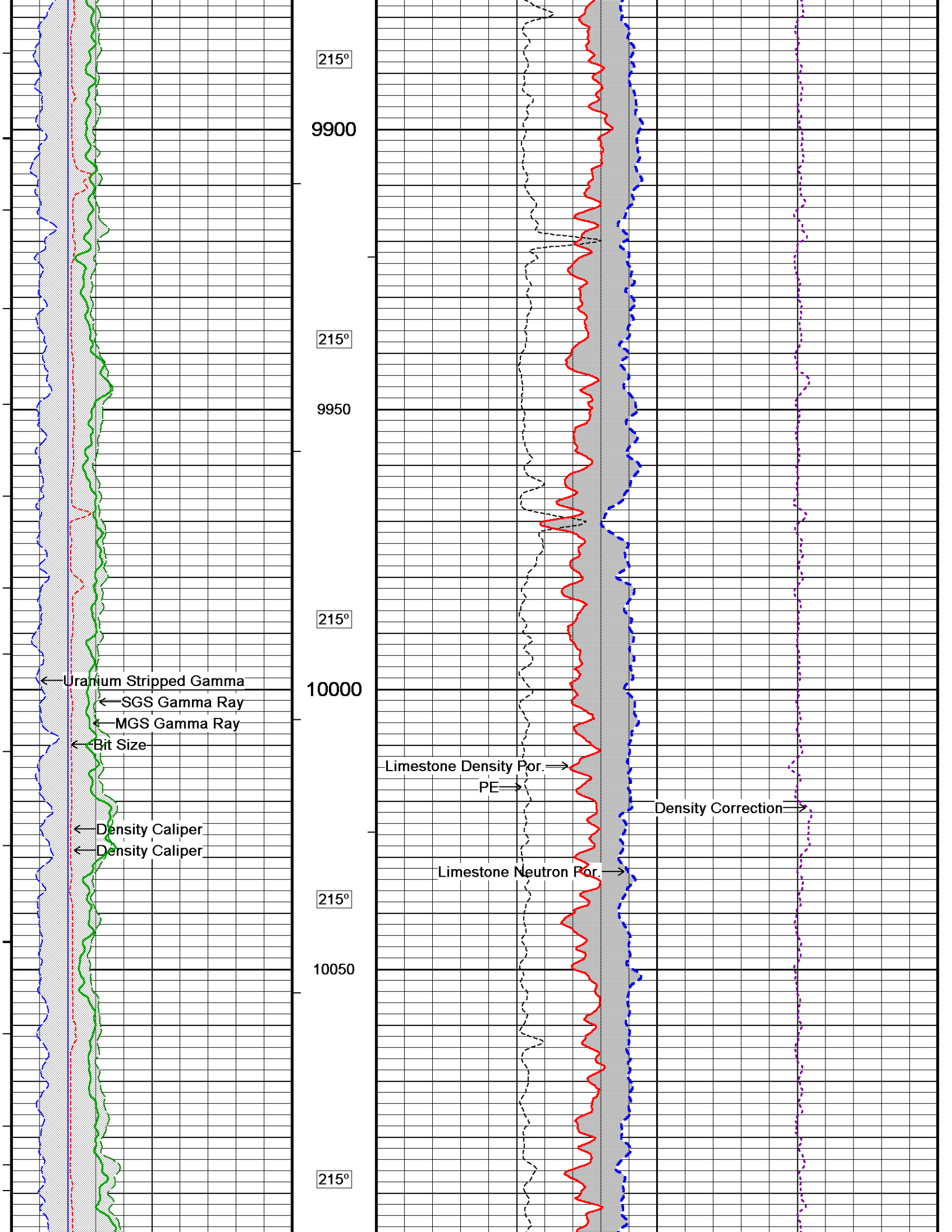

212°
8800
212°
8850
212°
8900
212°
8950
213°
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.

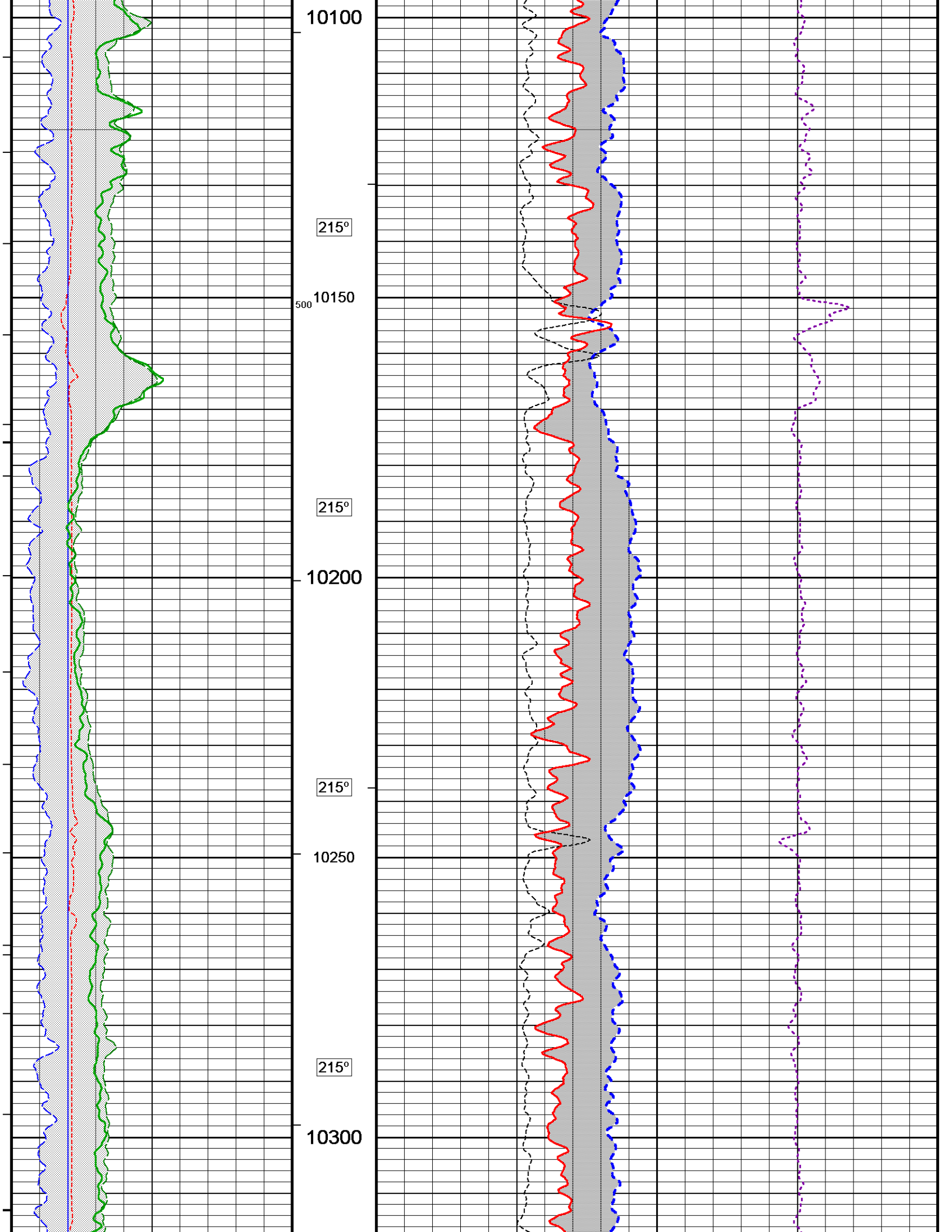

9000
213°
9050
213°
9100
213°
9150
213°
9200
Uranium Stripped Gamma
SGS Gamma Ray

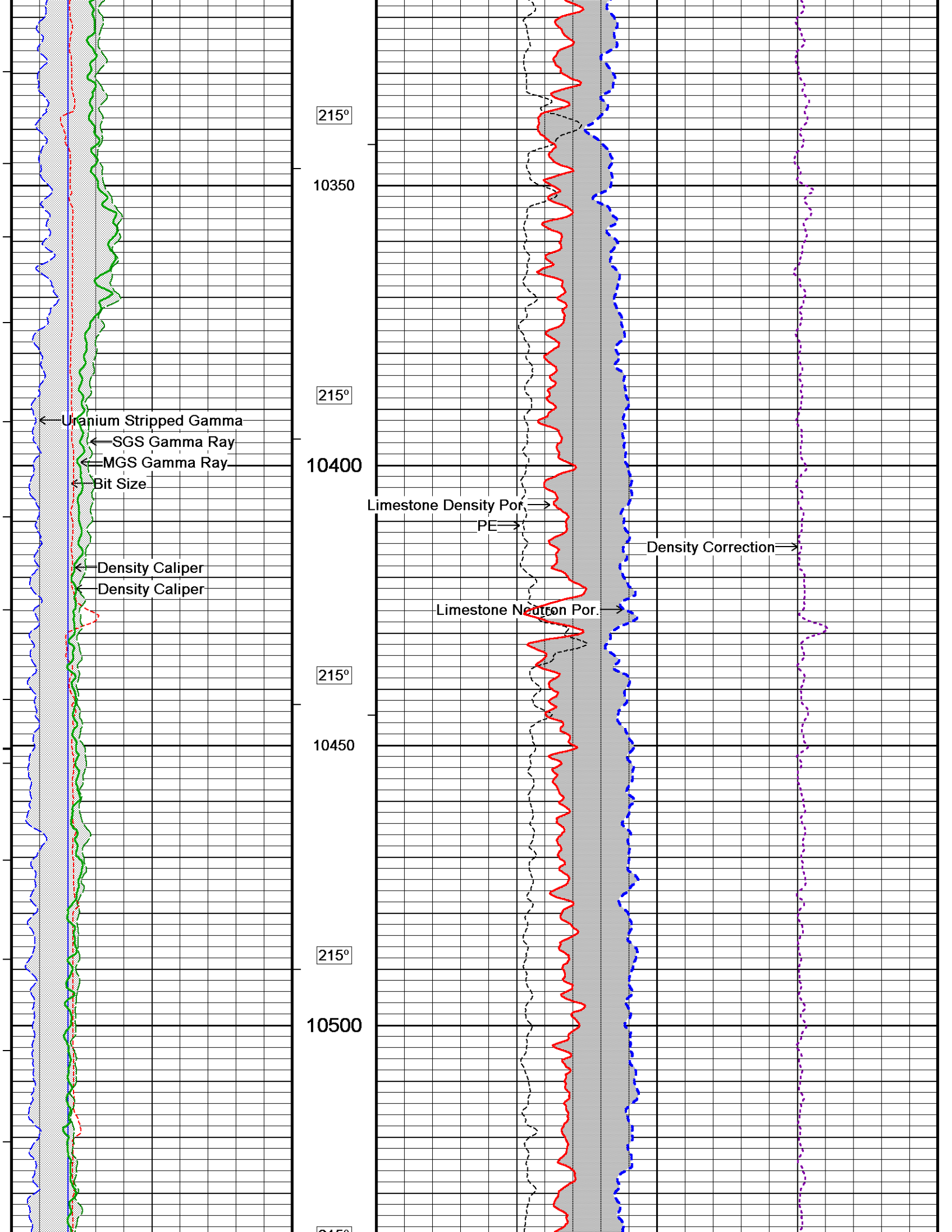

MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
700
213°
9250
213°
9300
213°
9350
214°
9400
Limestone Density Por.
PE
Limestone Neutron Por.
Density Correction

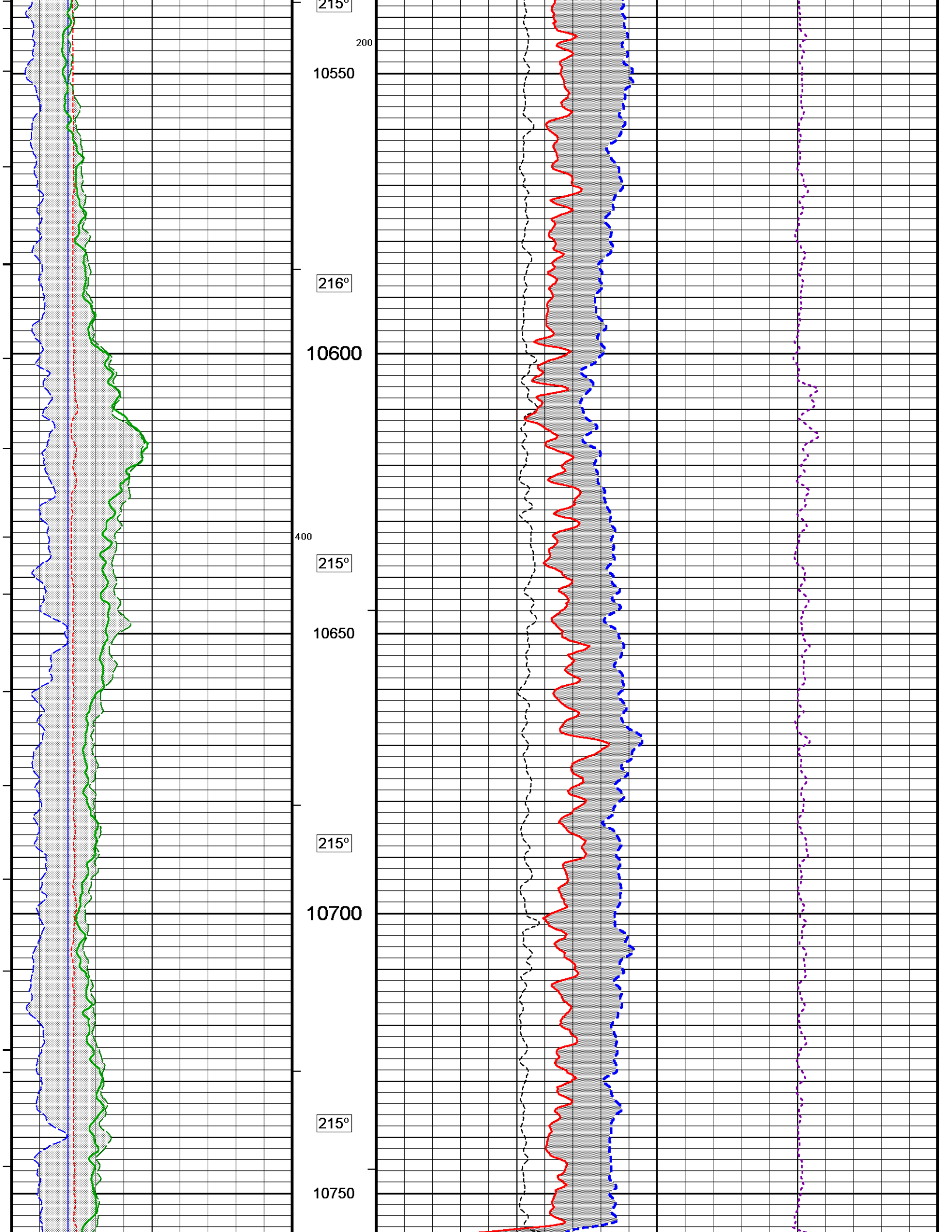

214°
9450
214°
9500
300
214°
9550
214°
9600
214°
9650
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.

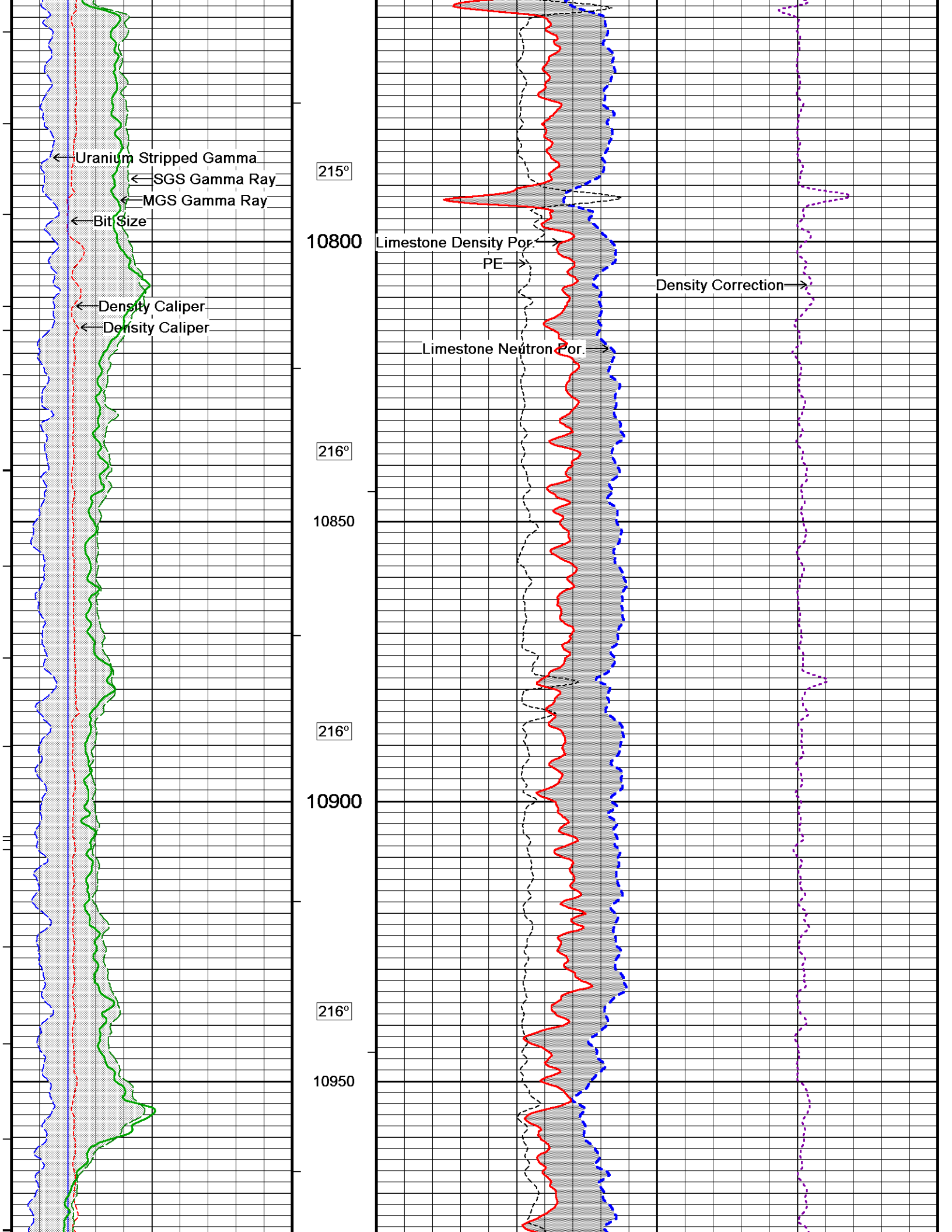

600
215°
9700
215°
9750
215°
9800
215°
9850

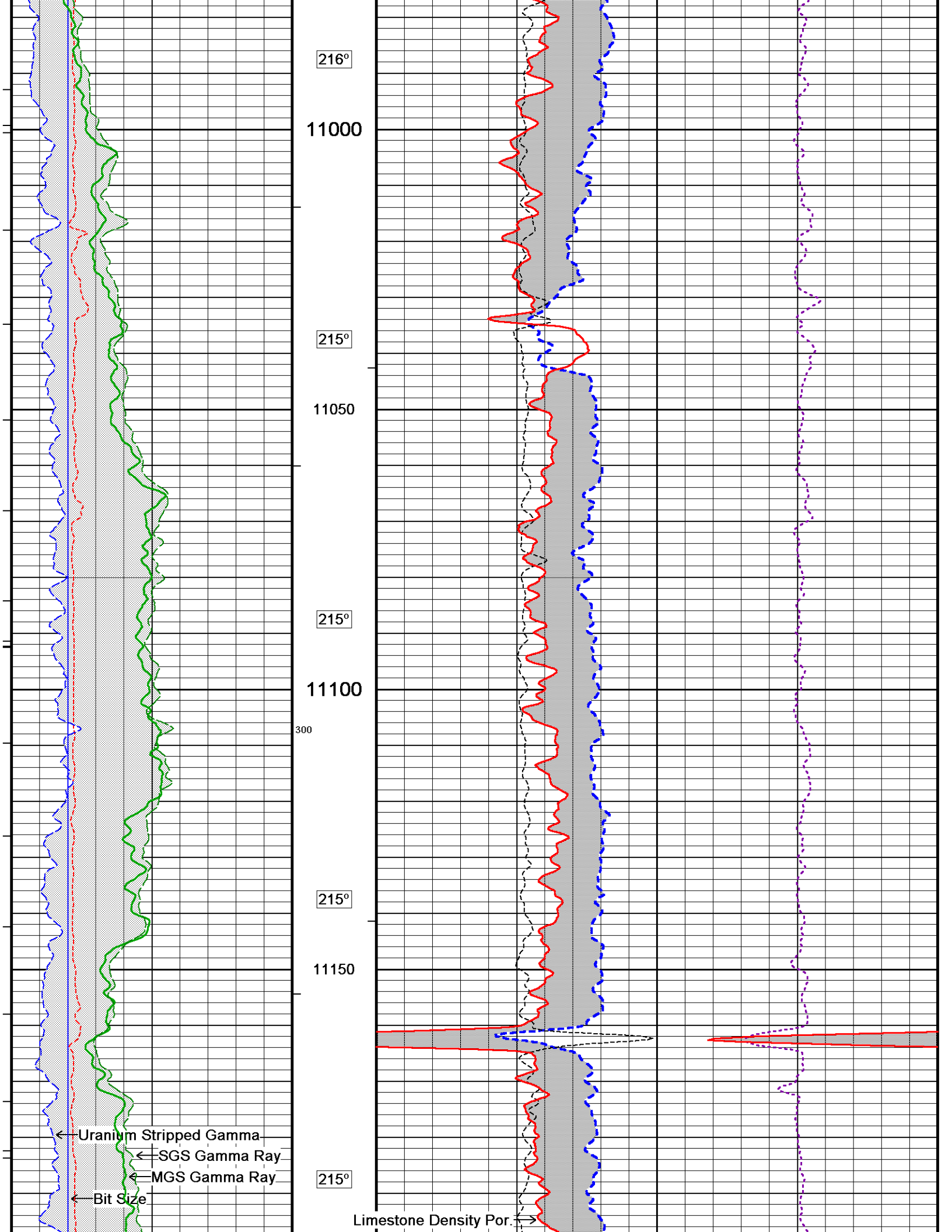

215°
9900
215°
9950
215°
10000
215°
10050
215°
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.

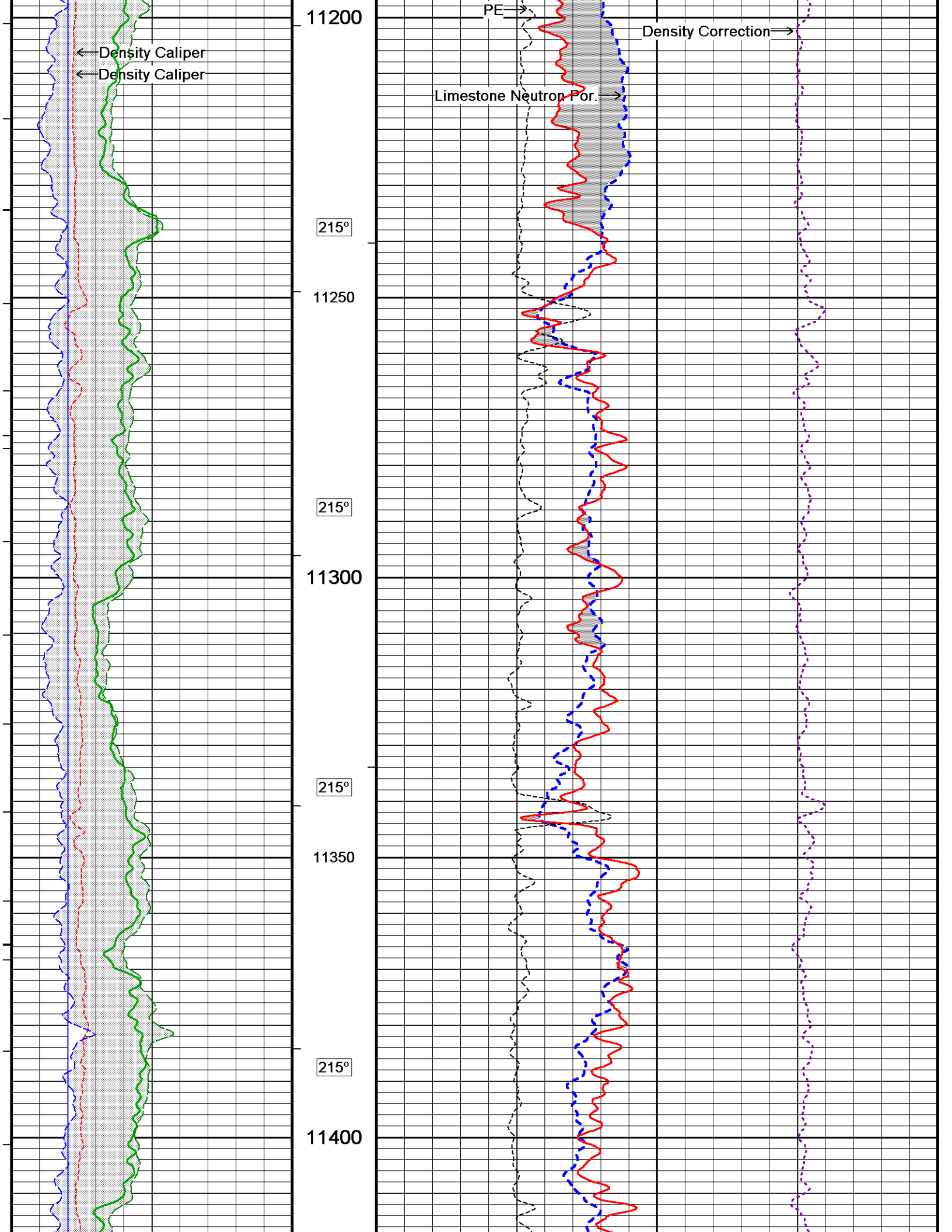

10100
215°
500
10150
215°
10200
215°
10250
215°
10300

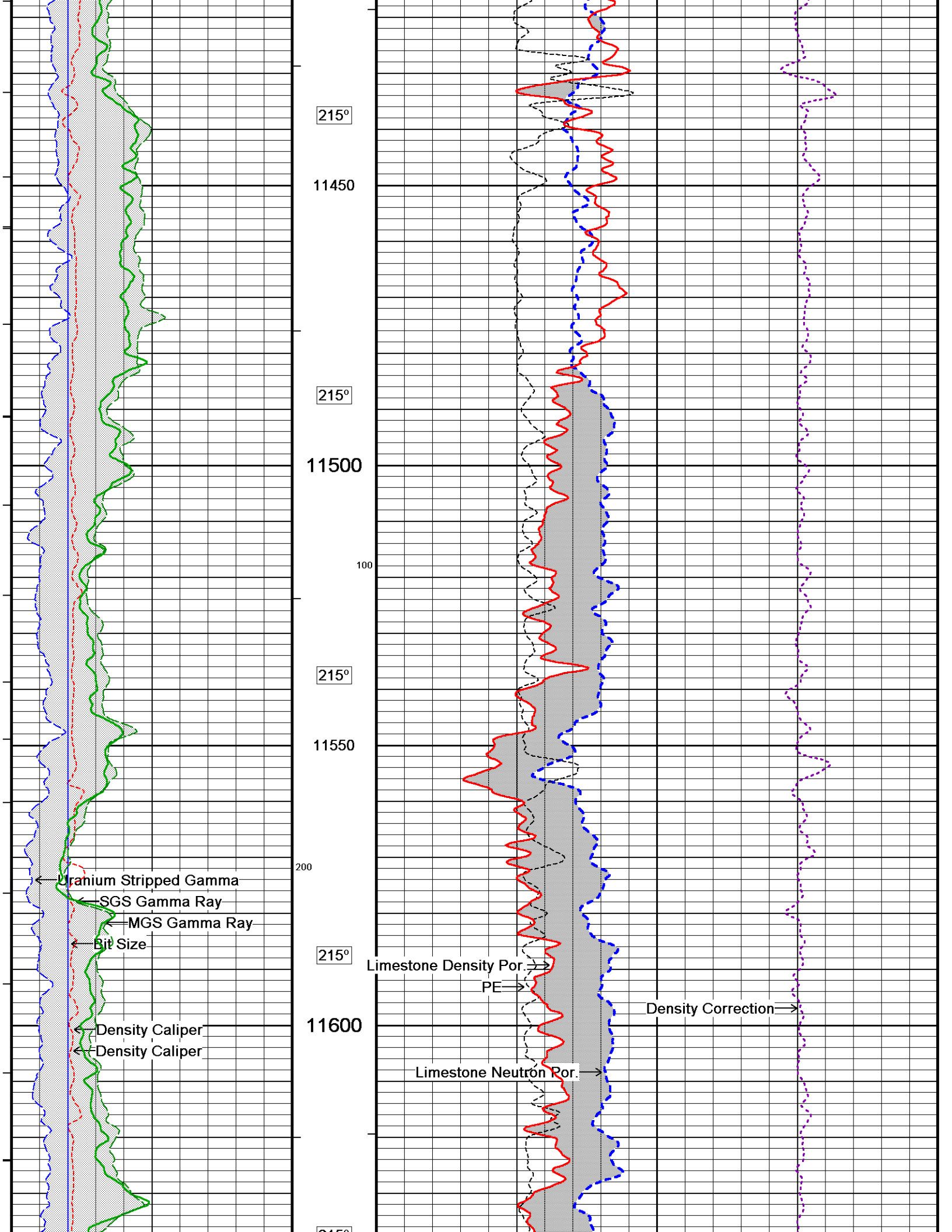

215°
10350
215°
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
10400
Limestone Density Por
PE
Density Correction
Density Caliper
Density Caliper
Limestone Neutron Por.
215°
10450
215°
10500

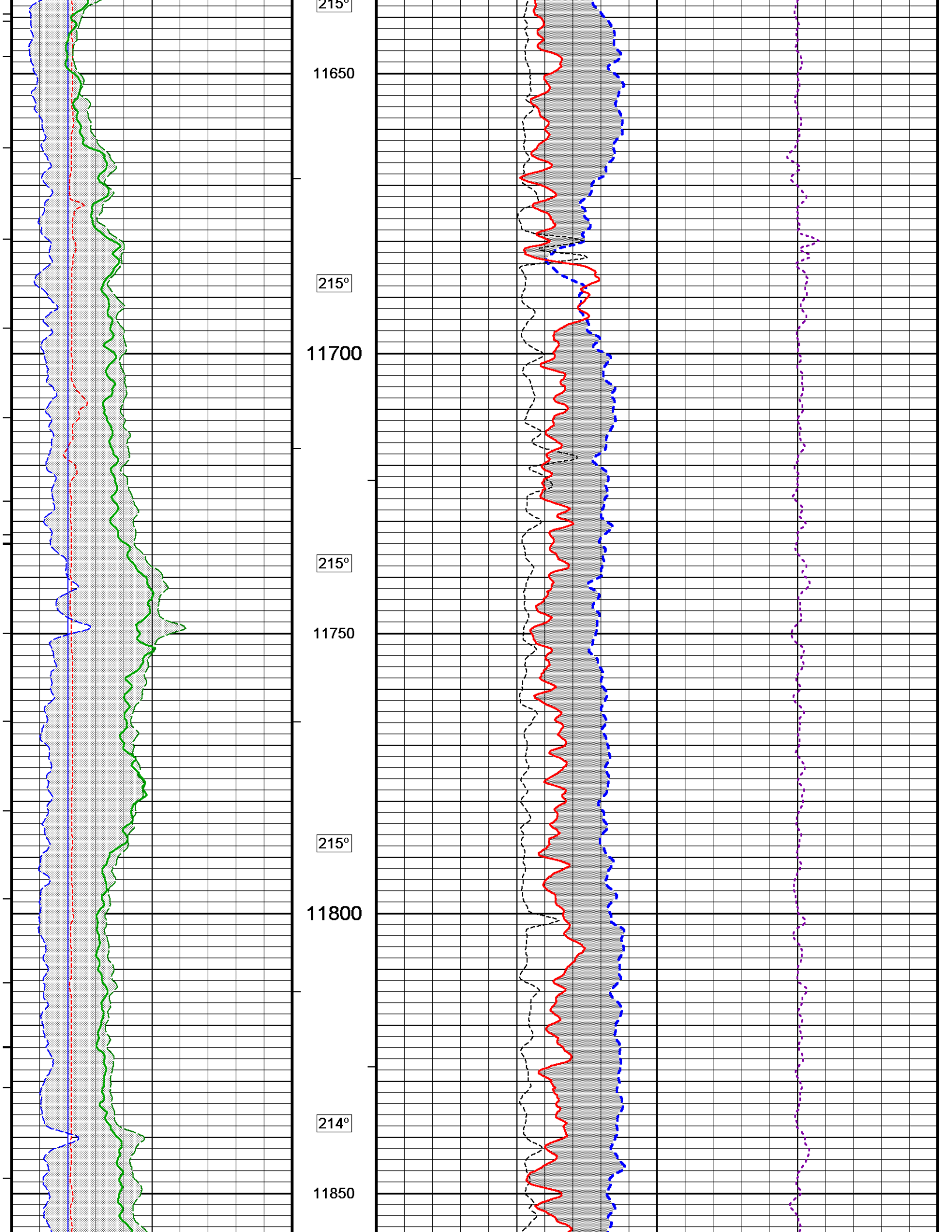

215°
200
10550
216°
10600
400
215°
10650
215°
10700
215°
10750

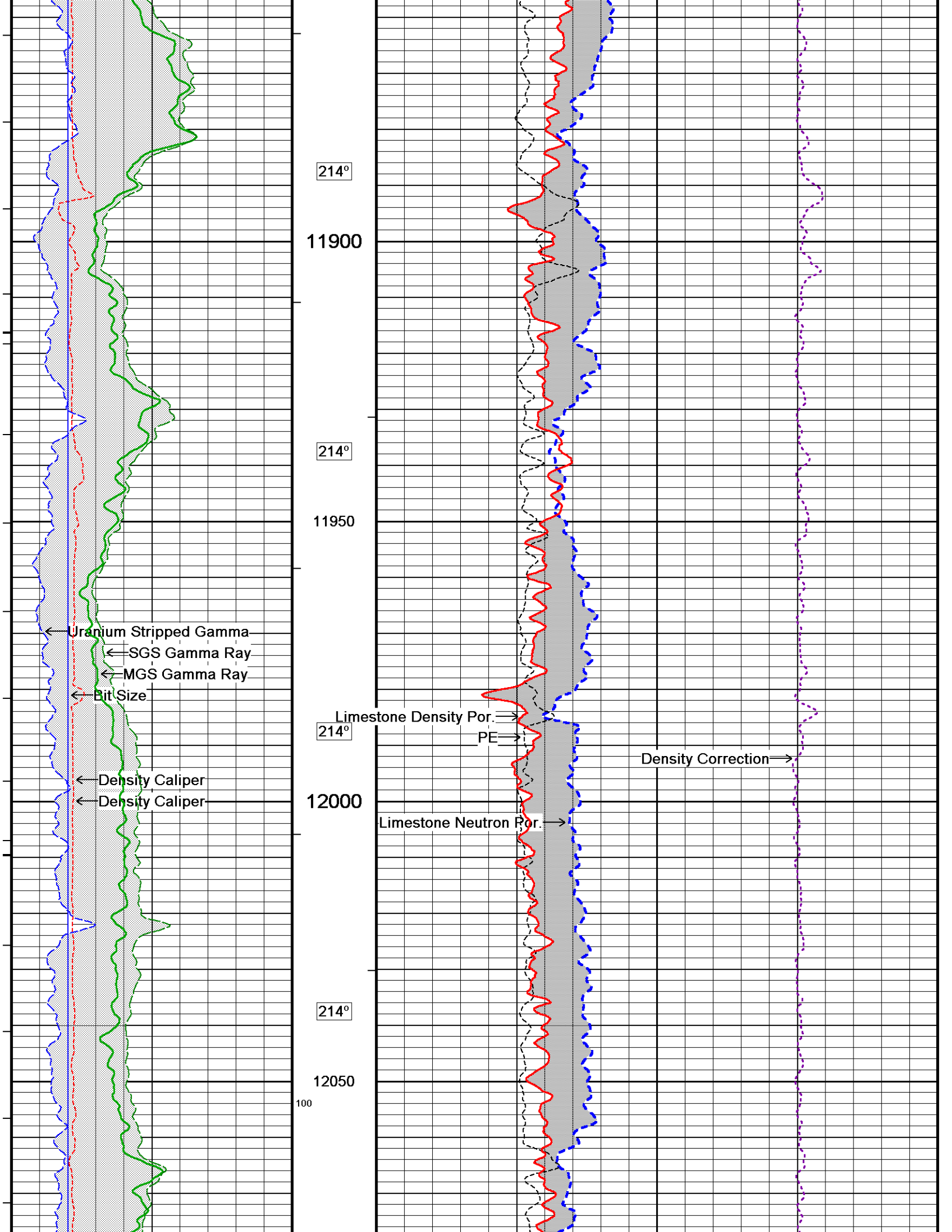

Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
215°
10800
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.
216°
10850
216°
10900
216°
10950

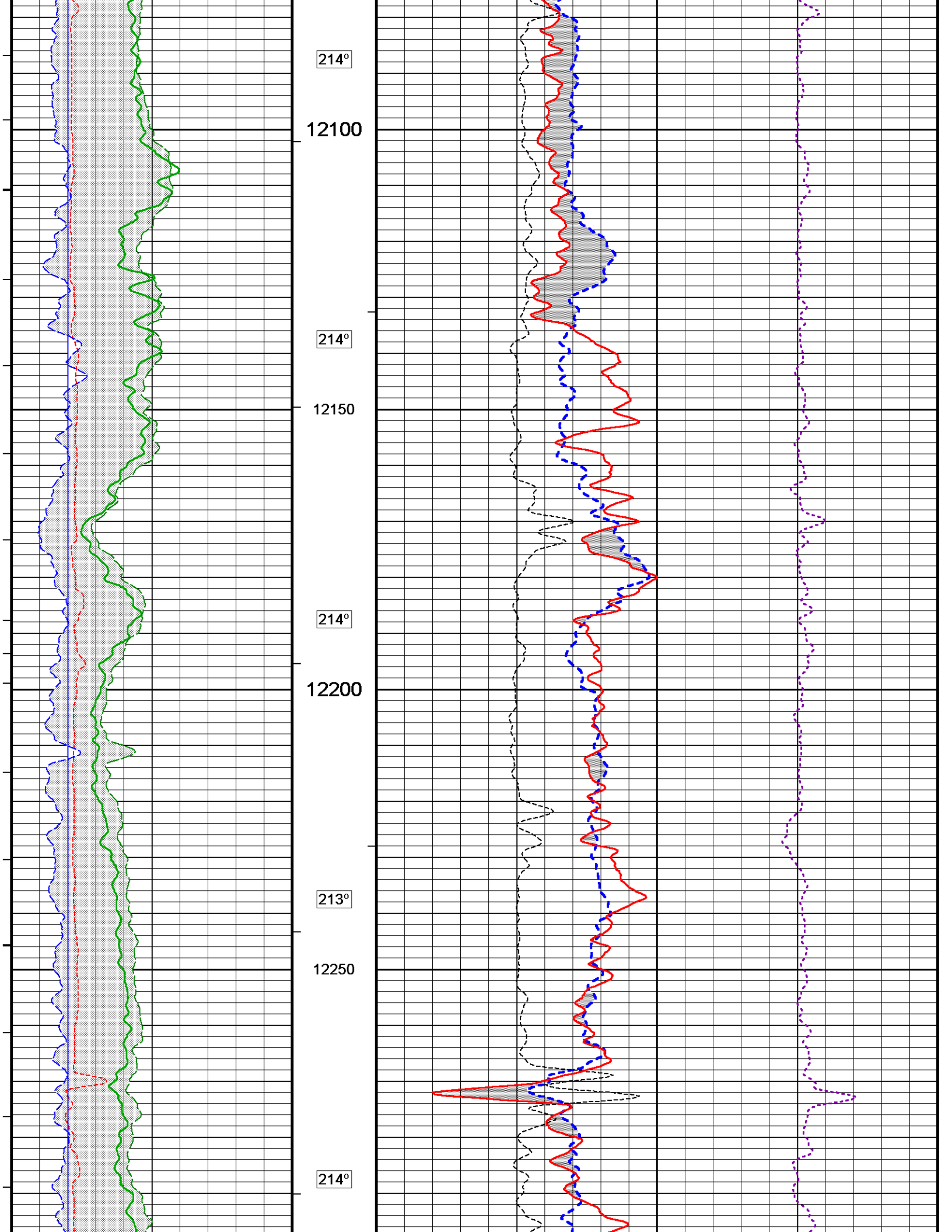

216°
11000
215°
11050
215°
11100
300
215°
11150
215°
←Uranium Stripped Gamma
←SGS Gamma Ray
←MGS Gamma Ray
←Bit Size
Limestone Density Por.→

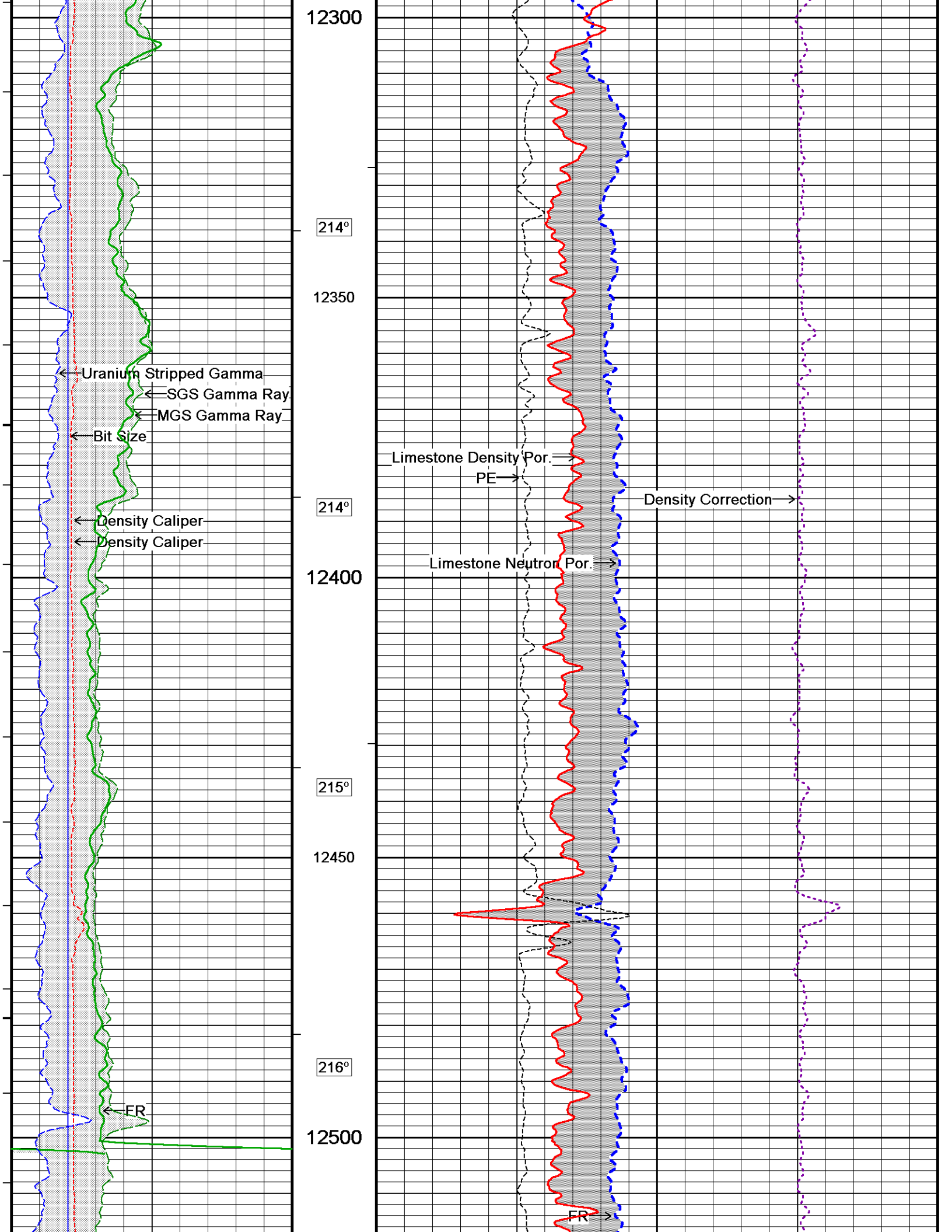

Density Caliper
Density Caliper
11200
215°
11250
215°
11300
215°
11350
215°
11400
PE
Limestone Neutron Por.
Density Correction

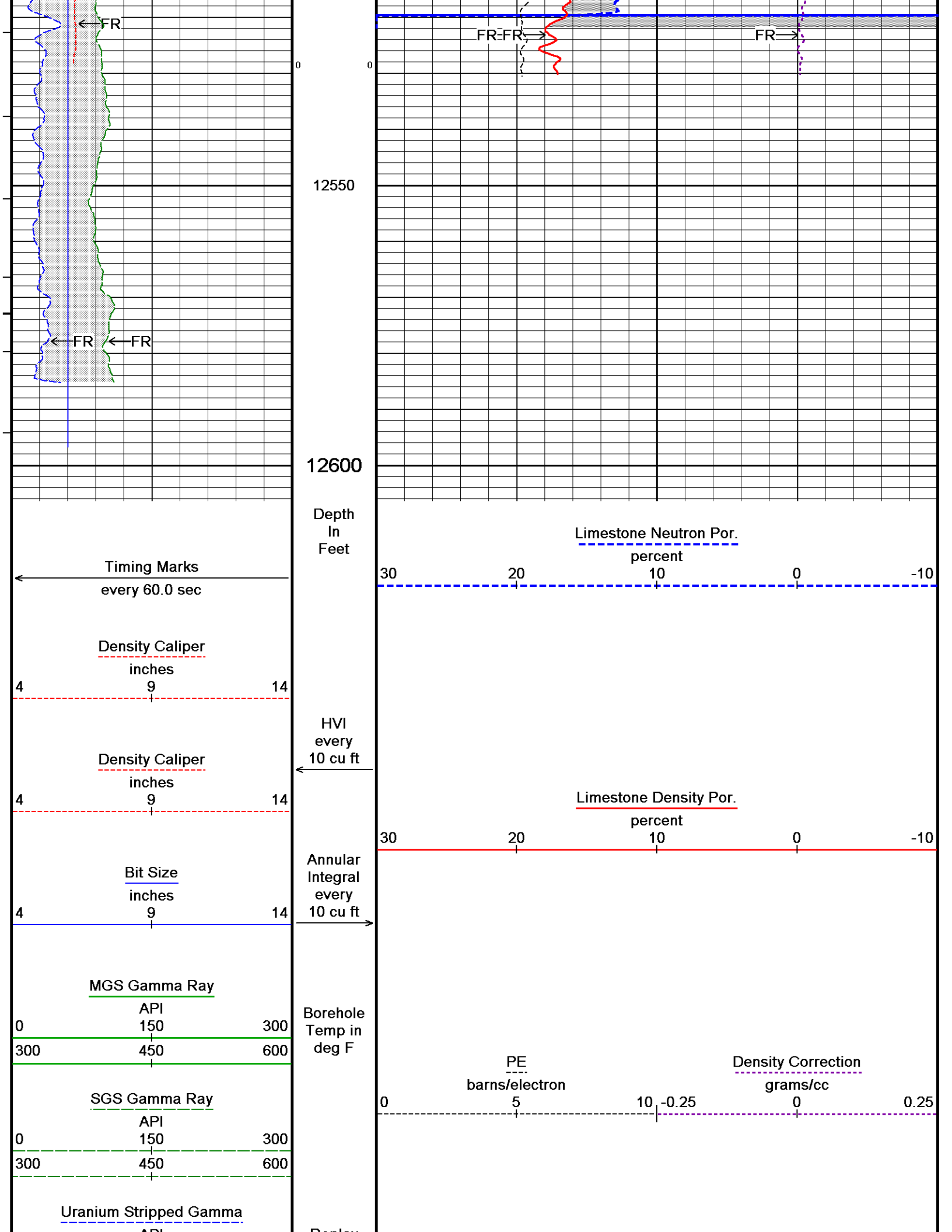

215°
11450
215°
11500
100
215°
11550
200
215°
11600
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
Limestone Density Por.
PE
Density Correction
Limestone Neutron Por.


215°
11650
215°
11700
215°
11750
215°
11800
214°
11850


214°
11900
214°
11950
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Limestone Density Por.
214°
PE
Density Correction
Density Caliper
Density Caliper
12000
Limestone Neutron Por.
214°
12050
100


214°
12100
214°
12150
214°
12200
213°
12250
214°


12300
214°
12350
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Limestone Density Por.
PE
214°
Density Correction
Density Caliper
Density Caliper
Limestone Neutron Por.
12400
215°
12450
216°
FR
12500
FR


FR
FR
FR
FR
FR
0
0
12550
12600
Depth
In
Feet
Timing Marks
every 60.0 sec
Density Caliper
inches
4
9
14
Density Caliper
inches
4
9
14
HVI
every
10 cu ft
Bit Size
inches
4
9
14
Annular
Integral
every
10 cu ft
MGS Gamma Ray
API
0
150
300
300
450
600
Borehole
Temp in
deg F
SGS Gamma Ray
API
0
150
300
300
450
600
Uranium Stripped Gamma
Limestone Neutron Por.
percent
30
20
10
0
-10
Limestone Density Por.
percent
30
20
10
0
-10
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
0.25

API
0 150 300
300 450 600

Replay
Scale
1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: F:\Razor 26k-2306b\cmitsgs_008.dta
System Versions: Processed with 13.04.8723 Plotted with 13.04.8723

Plotted on 23-JAN-2014 16:03
Recorded on 22-JAN-2014 21:22

CWS MEMORY LOG DSC

CWS MEMORY LOG DSC

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: F:\Razor 26k-2306b\cmitsgs_008.dta
System Versions: Processed with 13.04.8723 Plotted with 13.04.8723

Plotted on 23-JAN-2014 16:03
Recorded on 22-JAN-2014 21:22

Timing Marks
every 60.0 sec

Depth
In
Feet

Compensated Density
grams/cc
2 2.25 2.50 2.75 3

Density Caliper
inches
4 9 14

HVI
every
10 cu ft

Density Caliper
inches
4 9 14

Limestone Density Por.
percent
30 20 10 0 -10

Bit Size
inches
4 9 14

Annular
Integral
every
10 cu ft

MGS Gamma Ray
API
0 150 300
300 450 600

Borehole
Temp in
deg F

PE
barns/electron
0 5 10

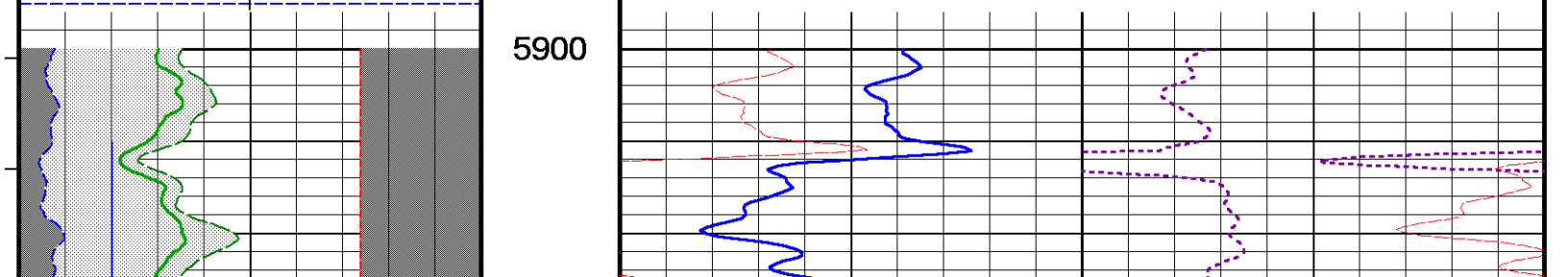
Density Correction
grams/cc
-0.25 0 0.25

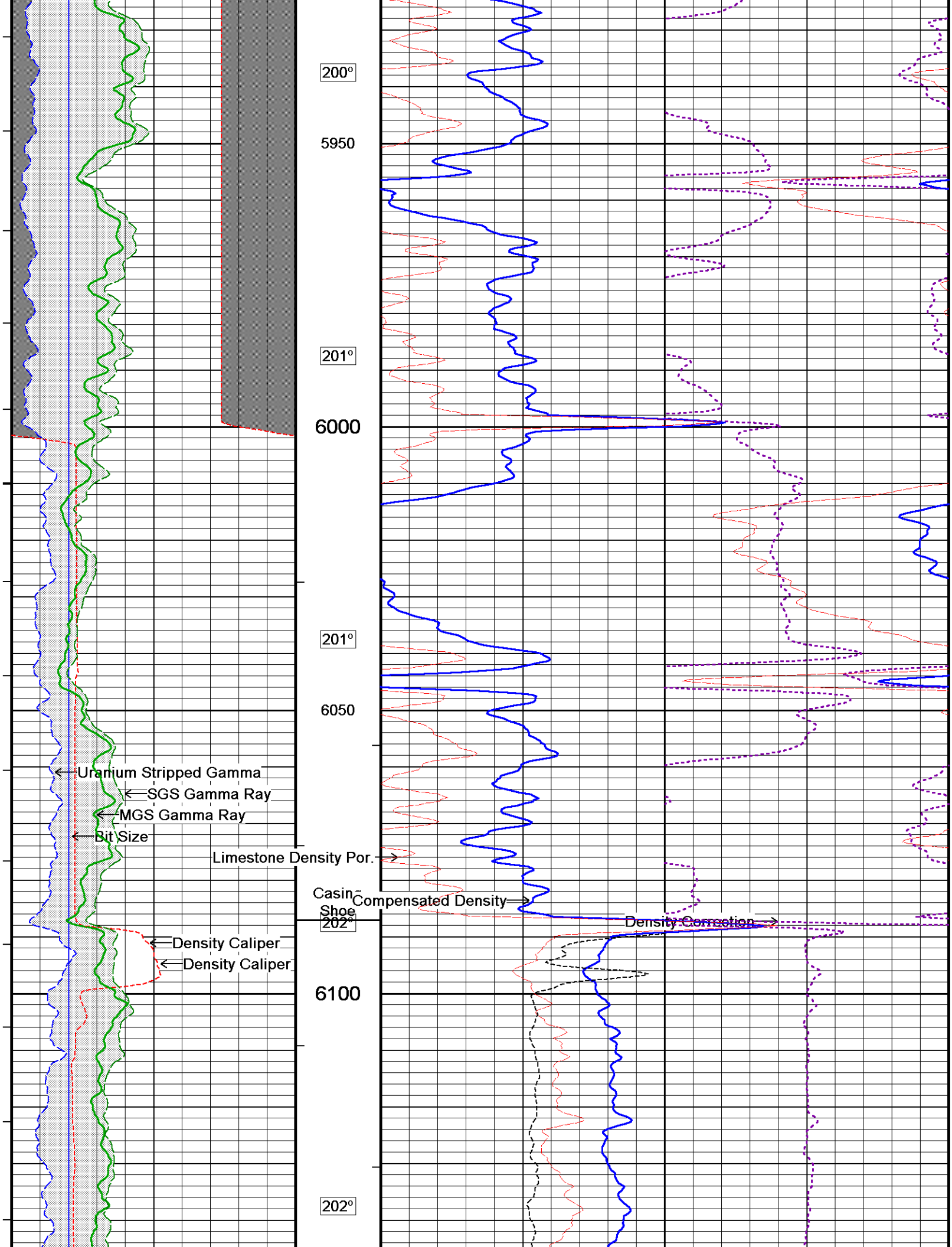
SGS Gamma Ray
API
0 150 300
300 450 600

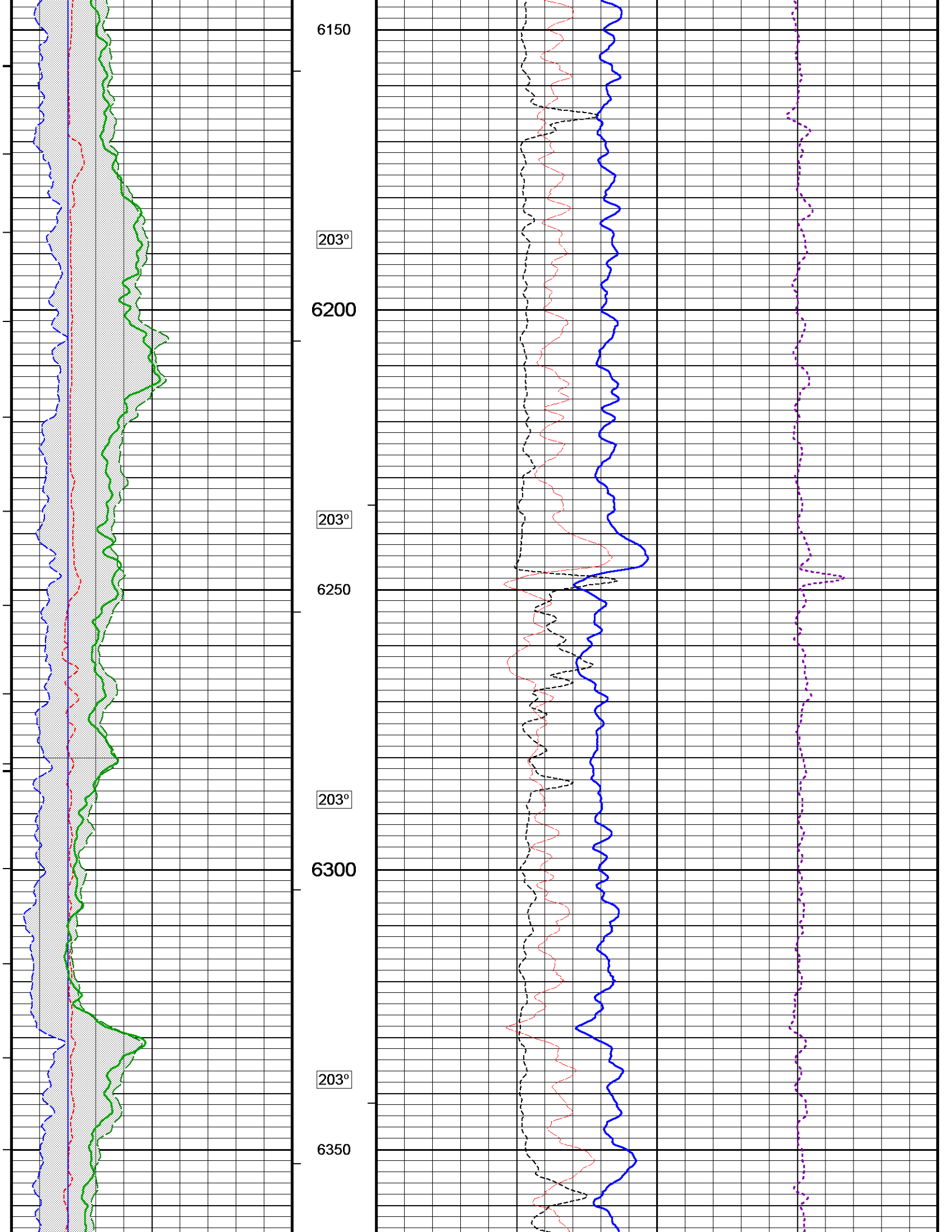
Uranium Stripped Gamma
API
0 150 300
300 450 600

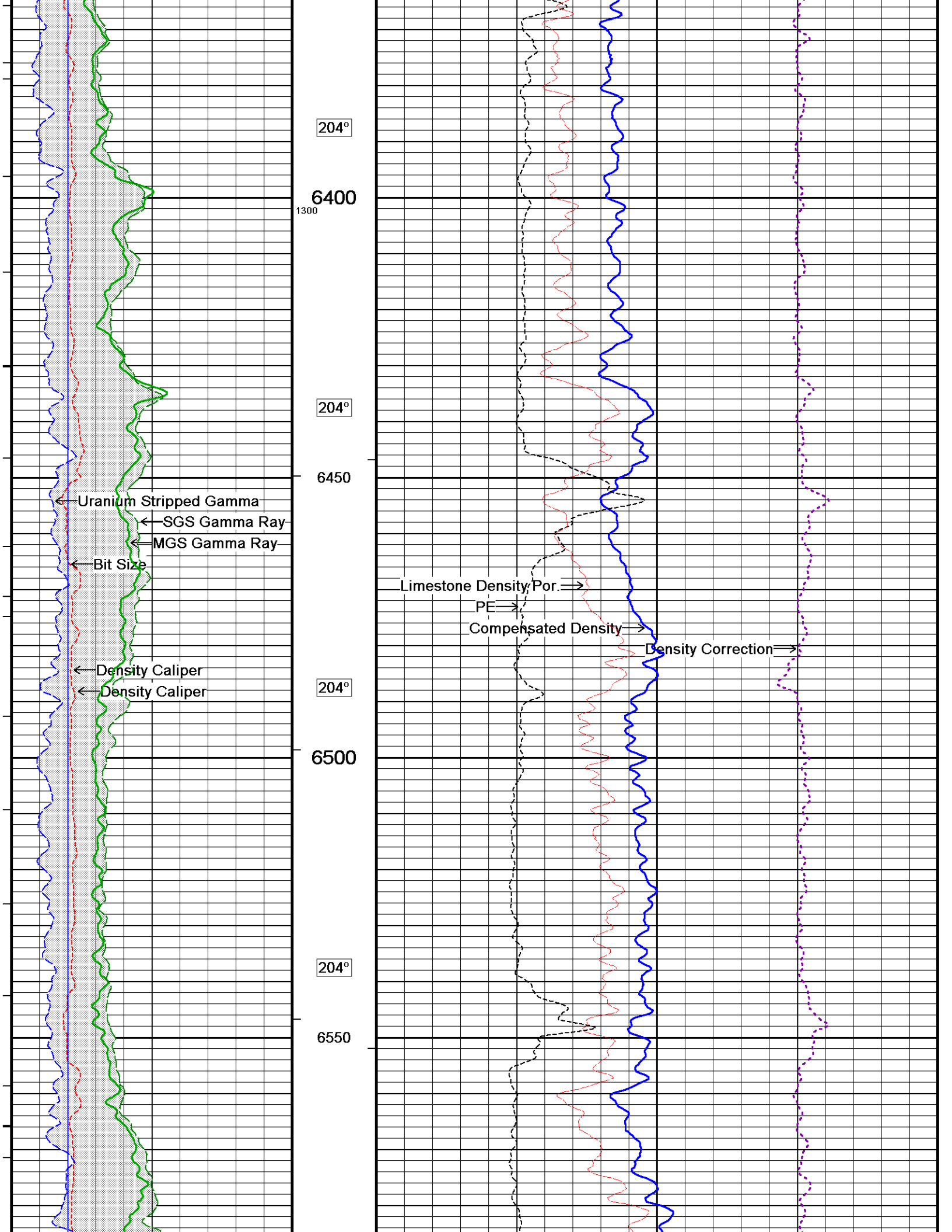
Replay
Scale
1:240

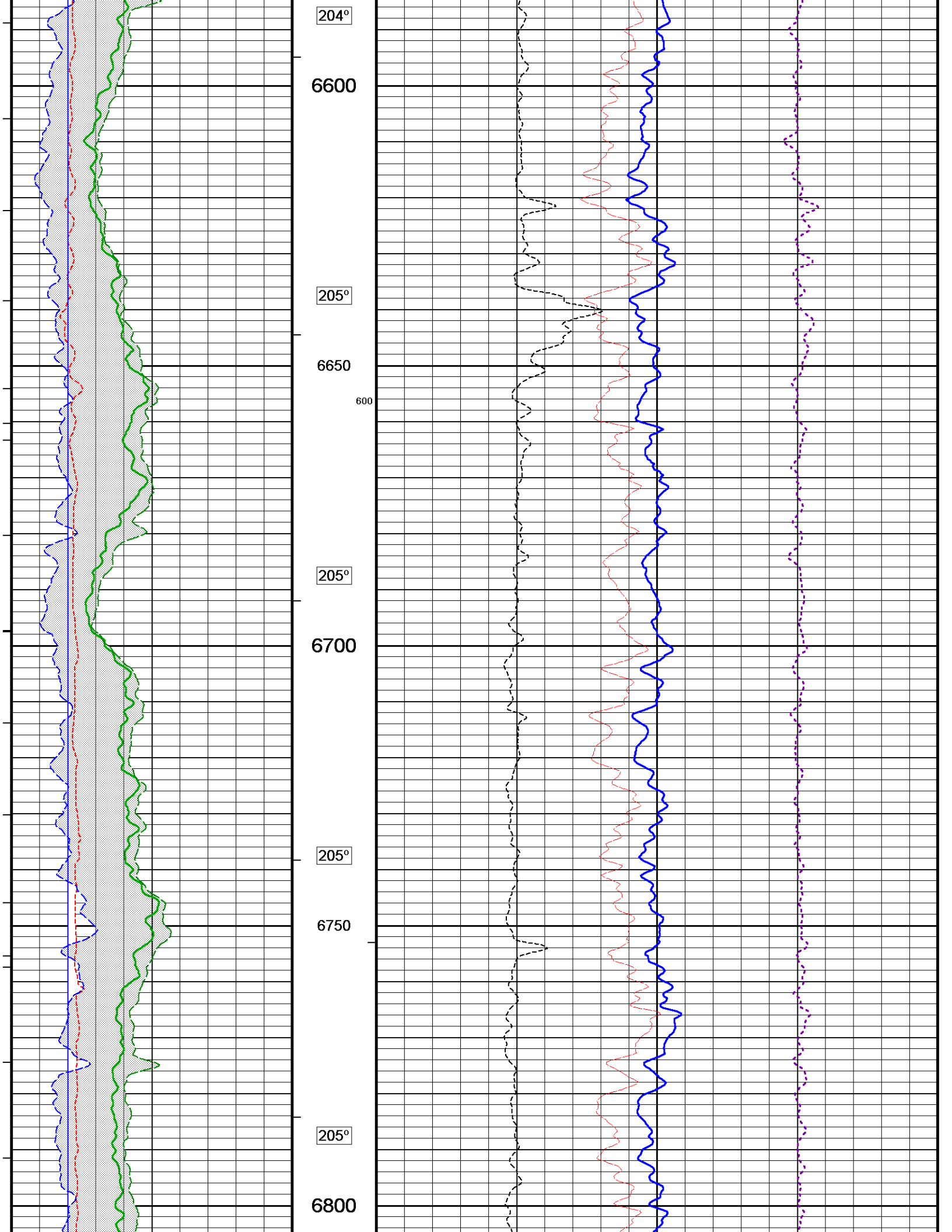
5900

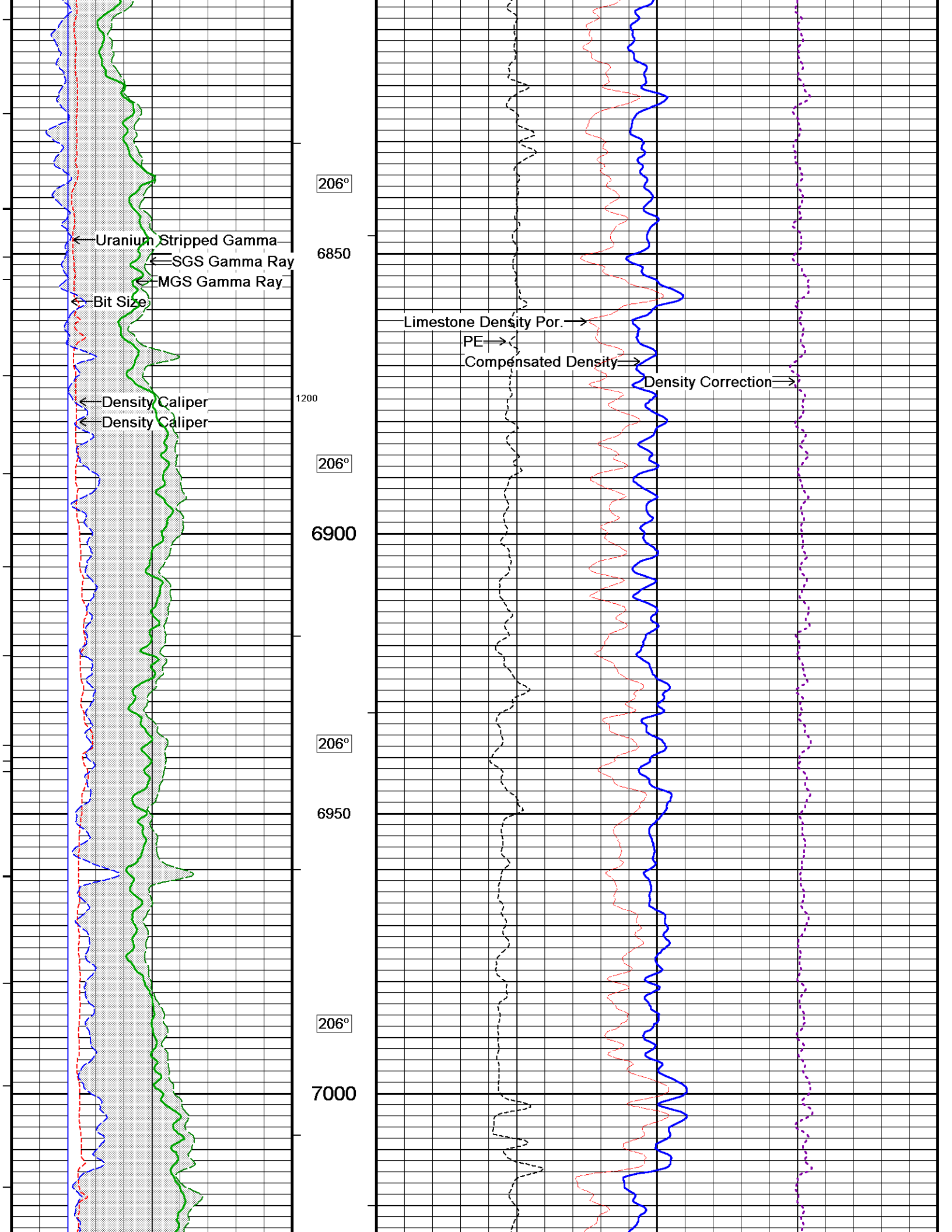


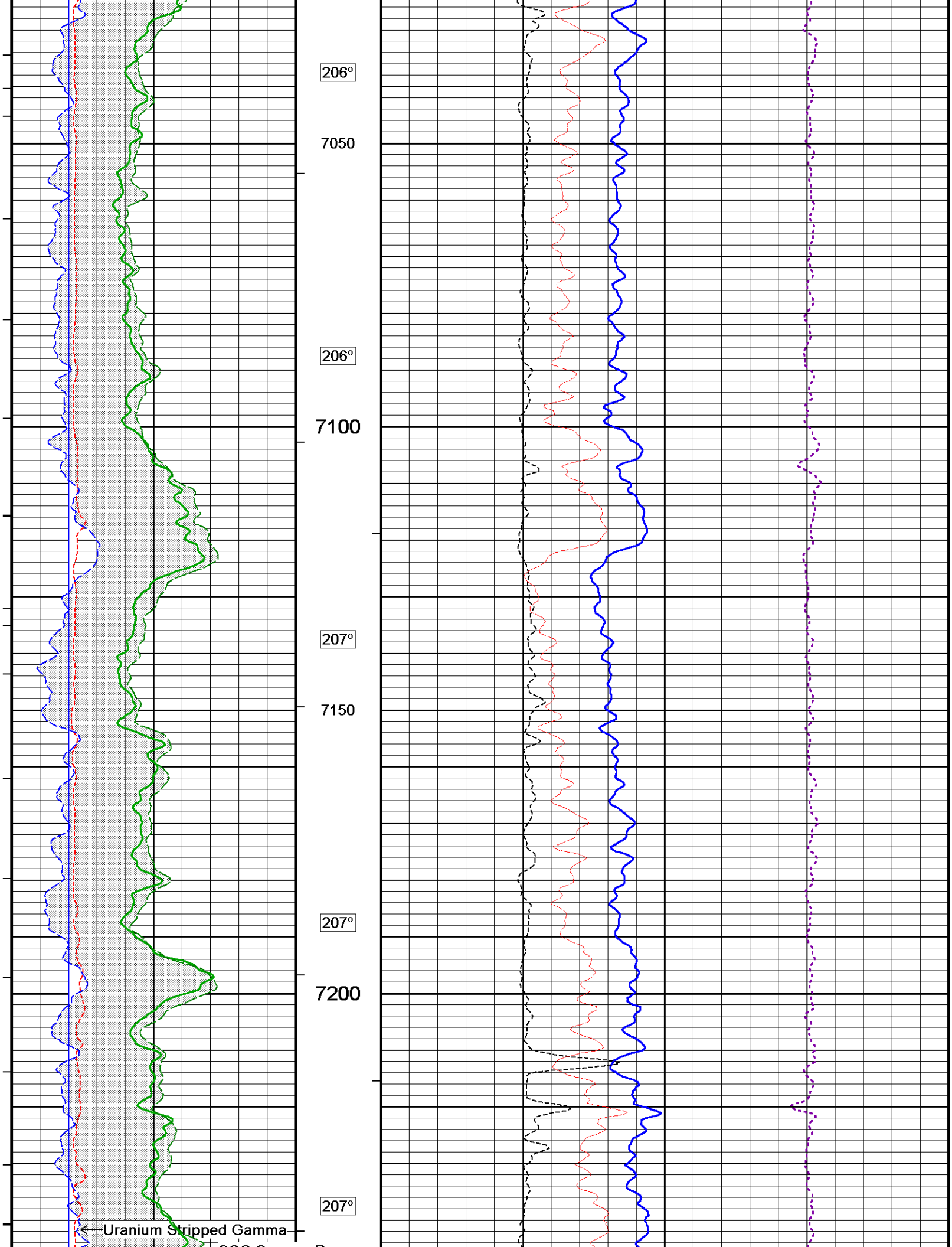

200°
5950
201°
6000
201°
6050
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Limestone Density Por.
Casing Shoe
Compensated Density
202°
Density Correction
Density Caliper
Density Caliper
6100
202°

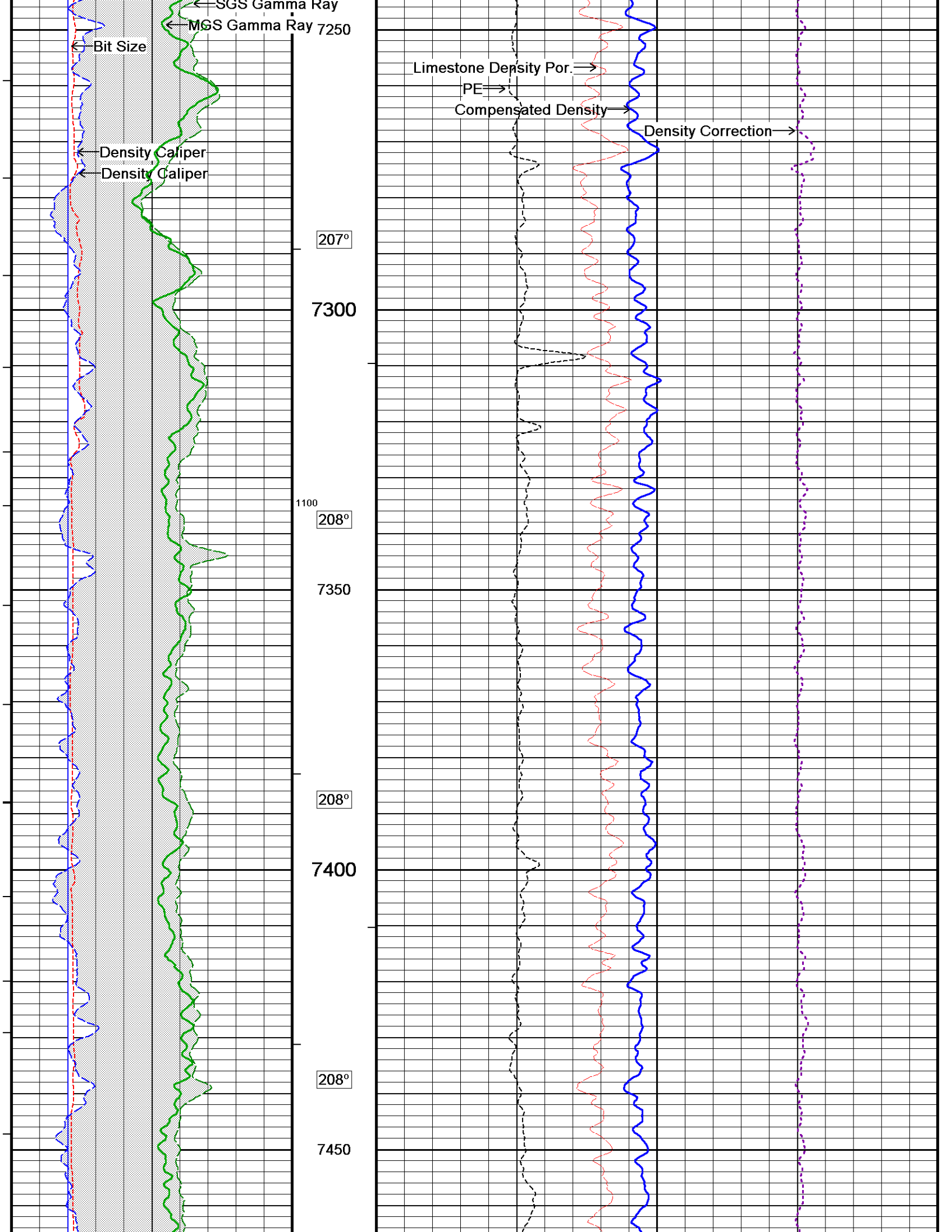

6150
203°
6200
203°
6250
203°
6300
203°
6350

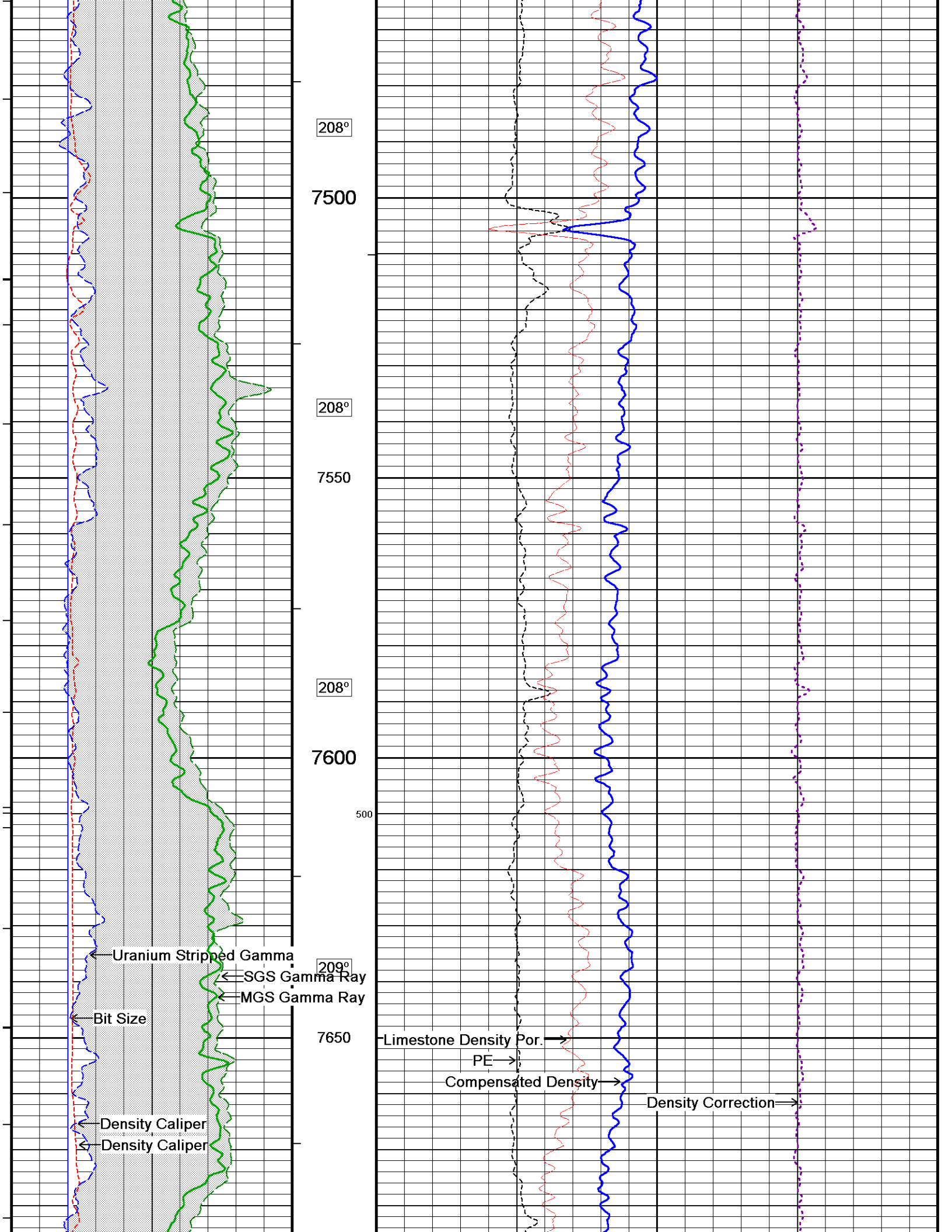

204°
6400
1300
204°
6450
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
Density Caliper
204°
6500
204°
6550

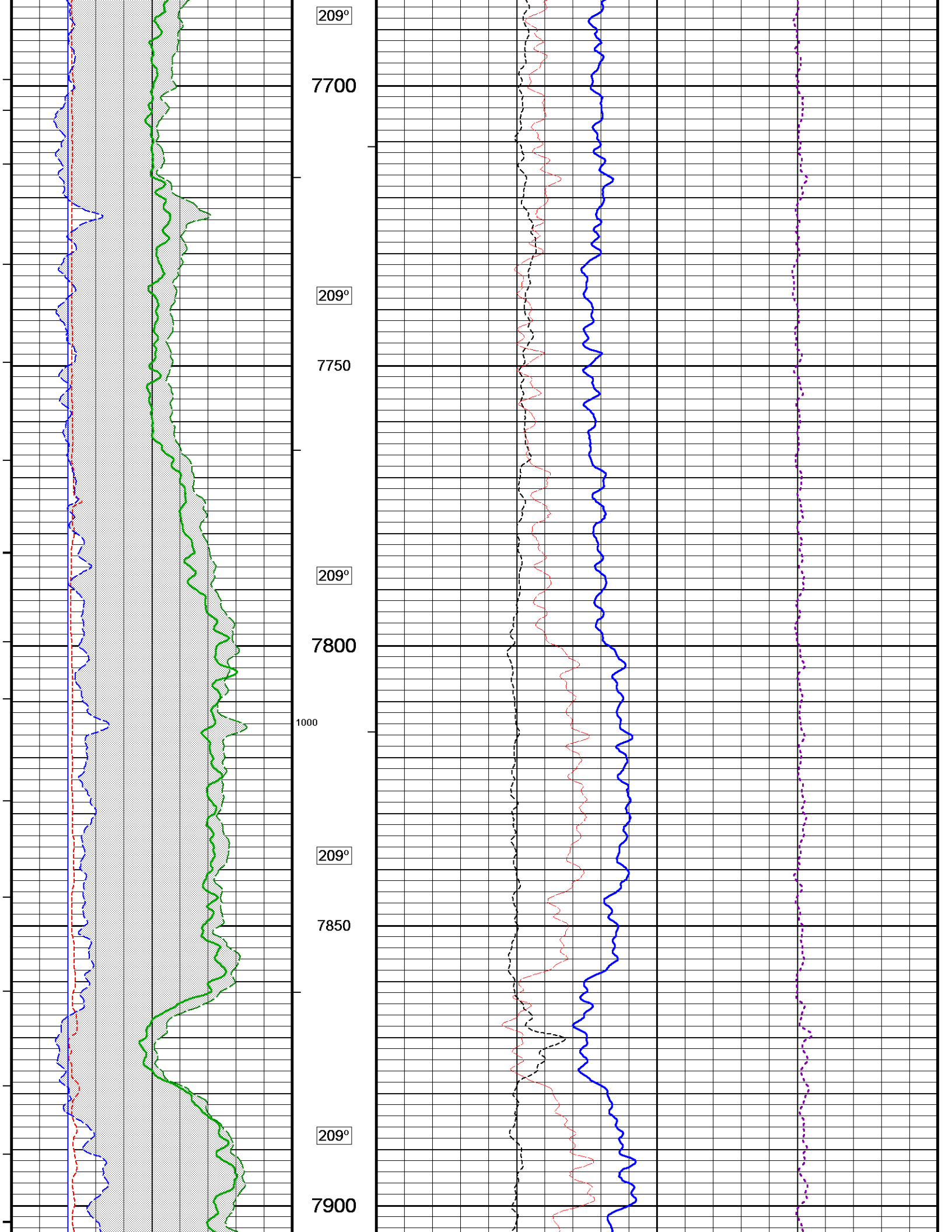

204°
6600
205°
6650
600
205°
6700
205°
6750
205°
6800

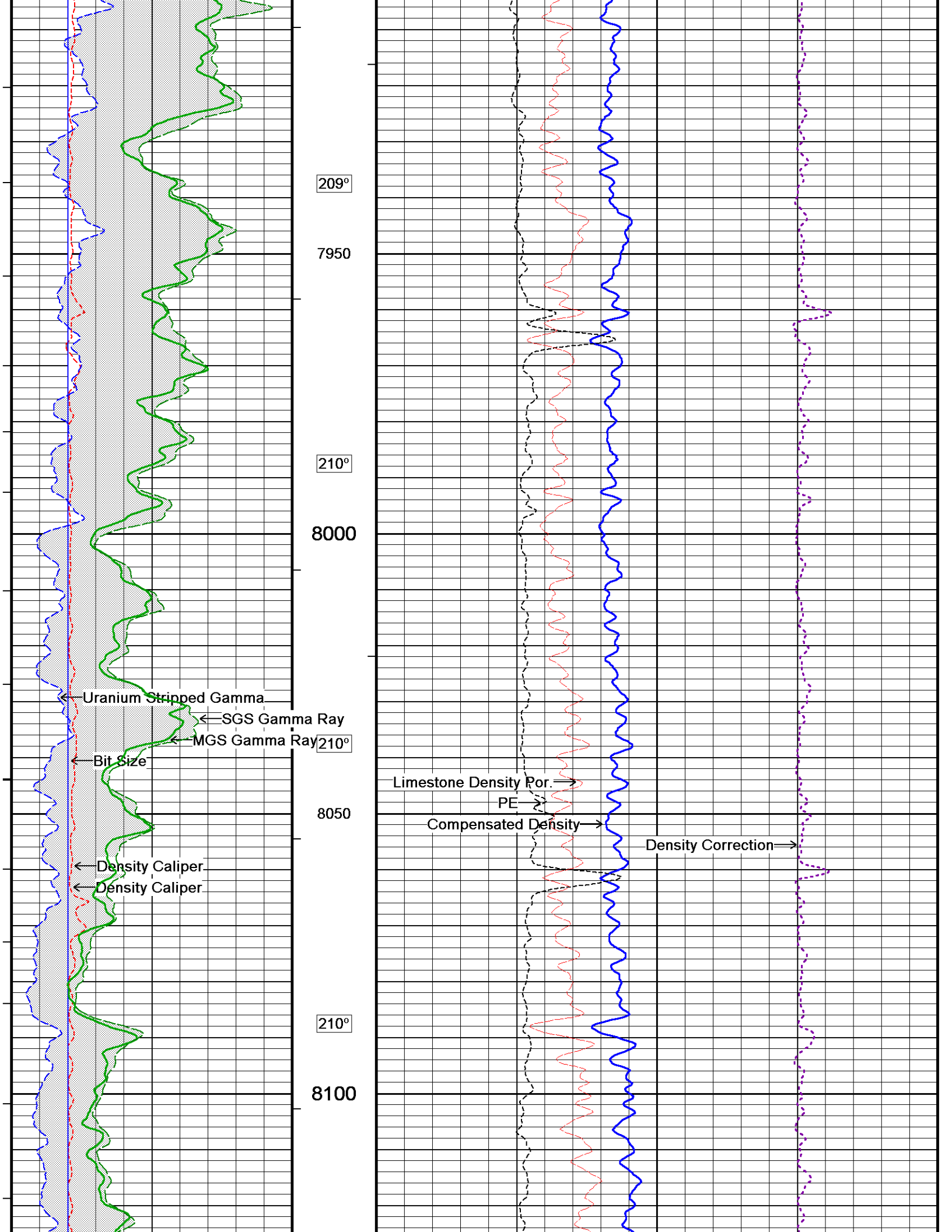

206°
Uranium Stripped Gamma
6850
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
1200
Density Caliper
206°
6900
206°
6950
206°
7000

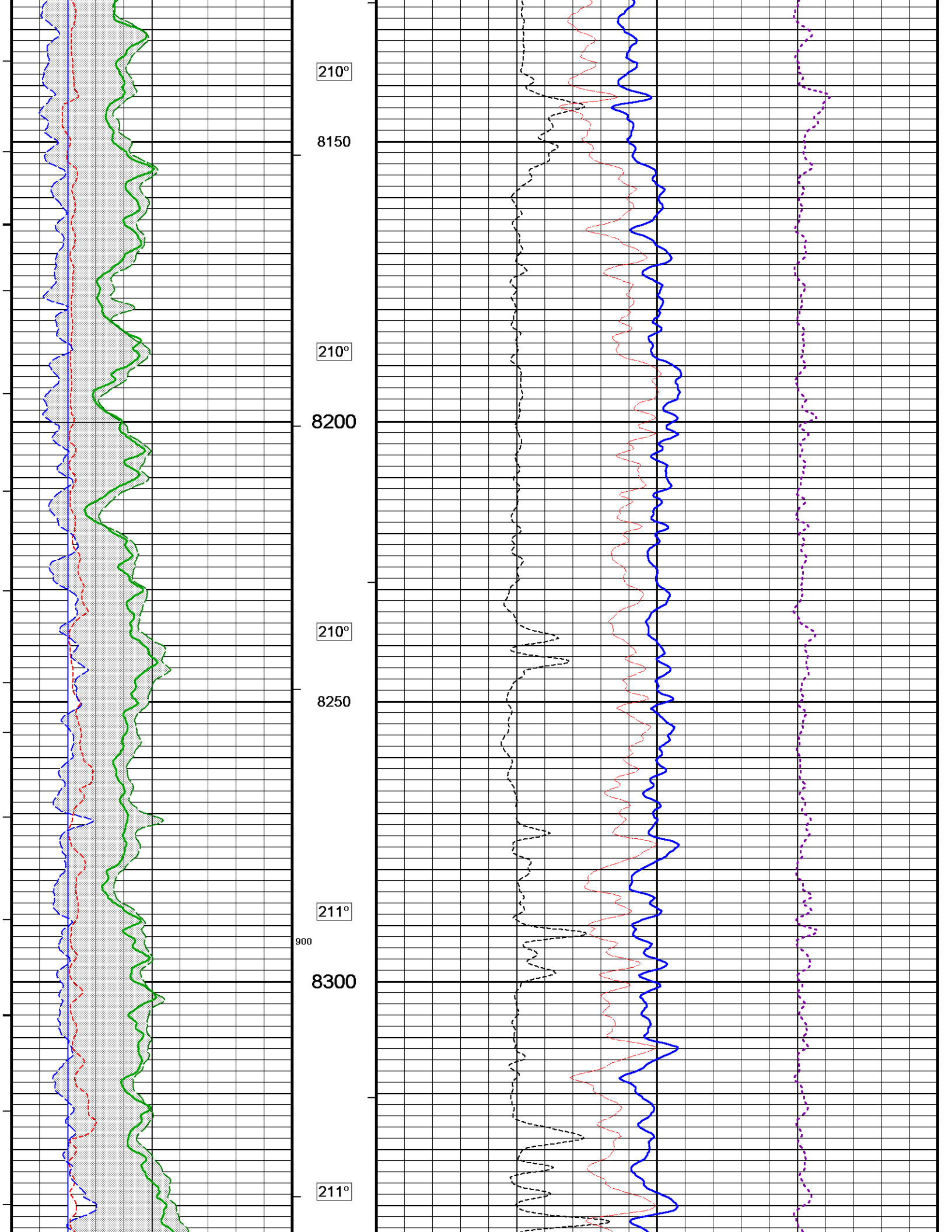

206°
7050
206°
7100
207°
7150
207°
7200
207°
←Uranium Stripped Gamma

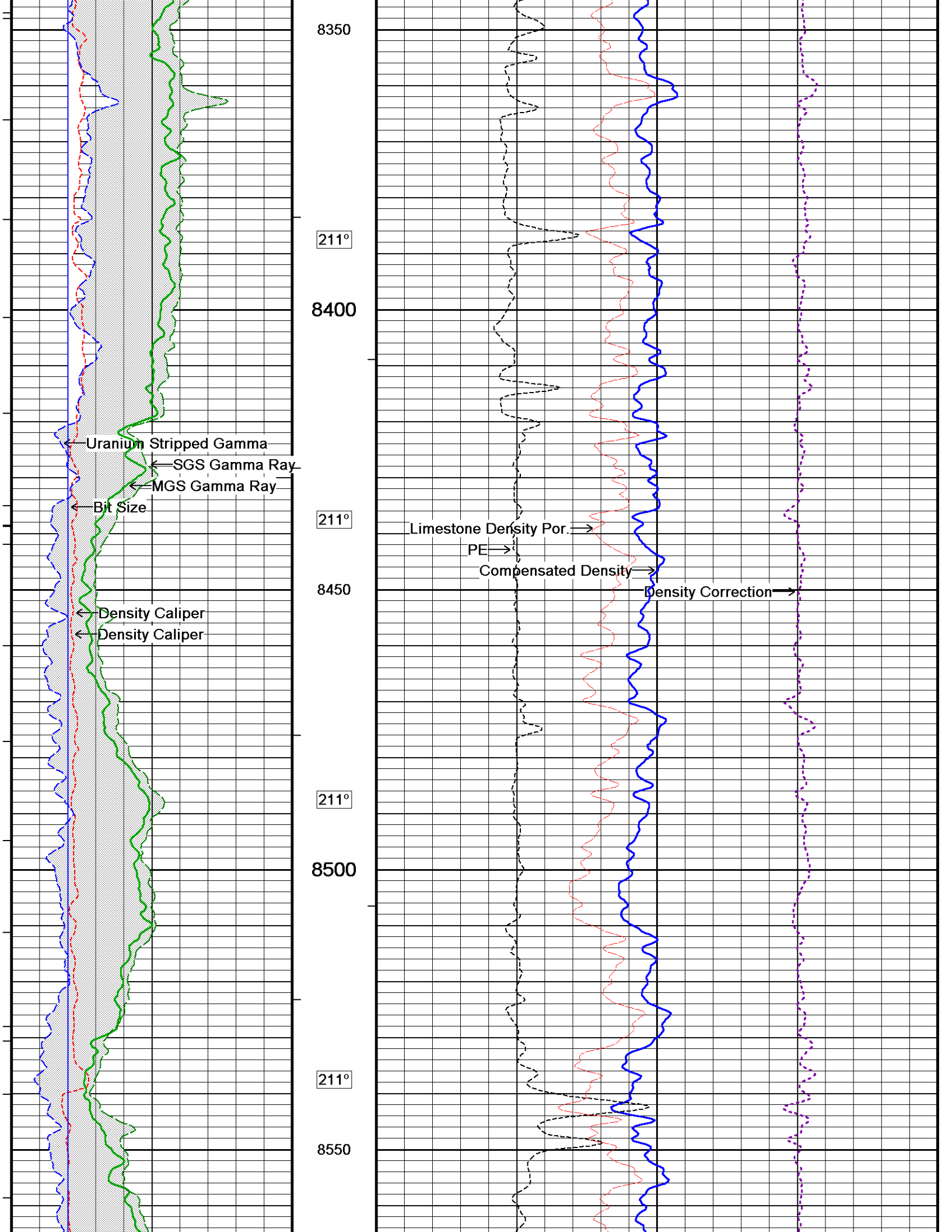

SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
7250
207°
7300
1100
208°
7350
208°
7400
208°
7450
Limestone Density Por
PE
Compensated Density
Density Correction

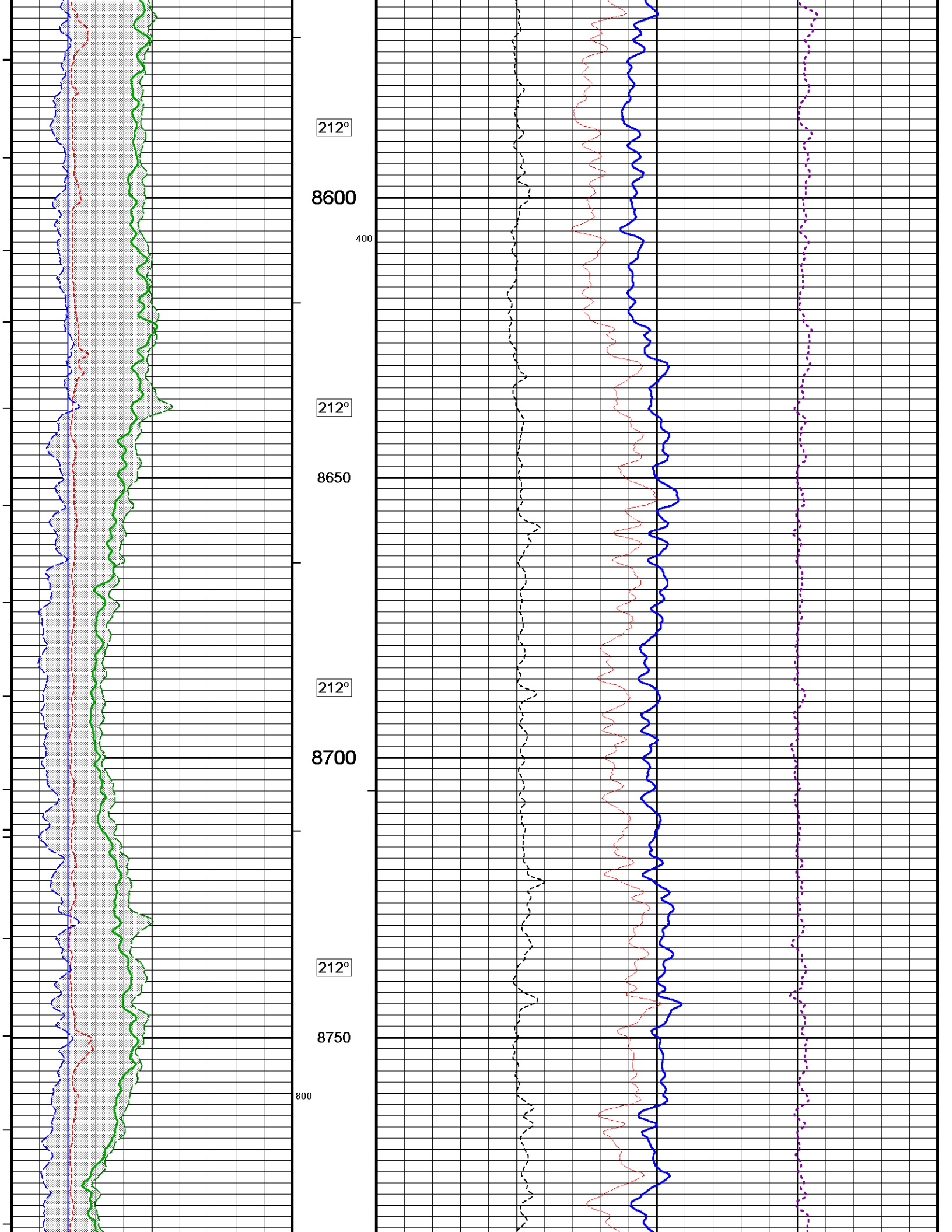

208°
7500
208°
7550
208°
7600
500
209°
7650
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
Limestone Density Por.
PE
Compensated Density
Density Correction

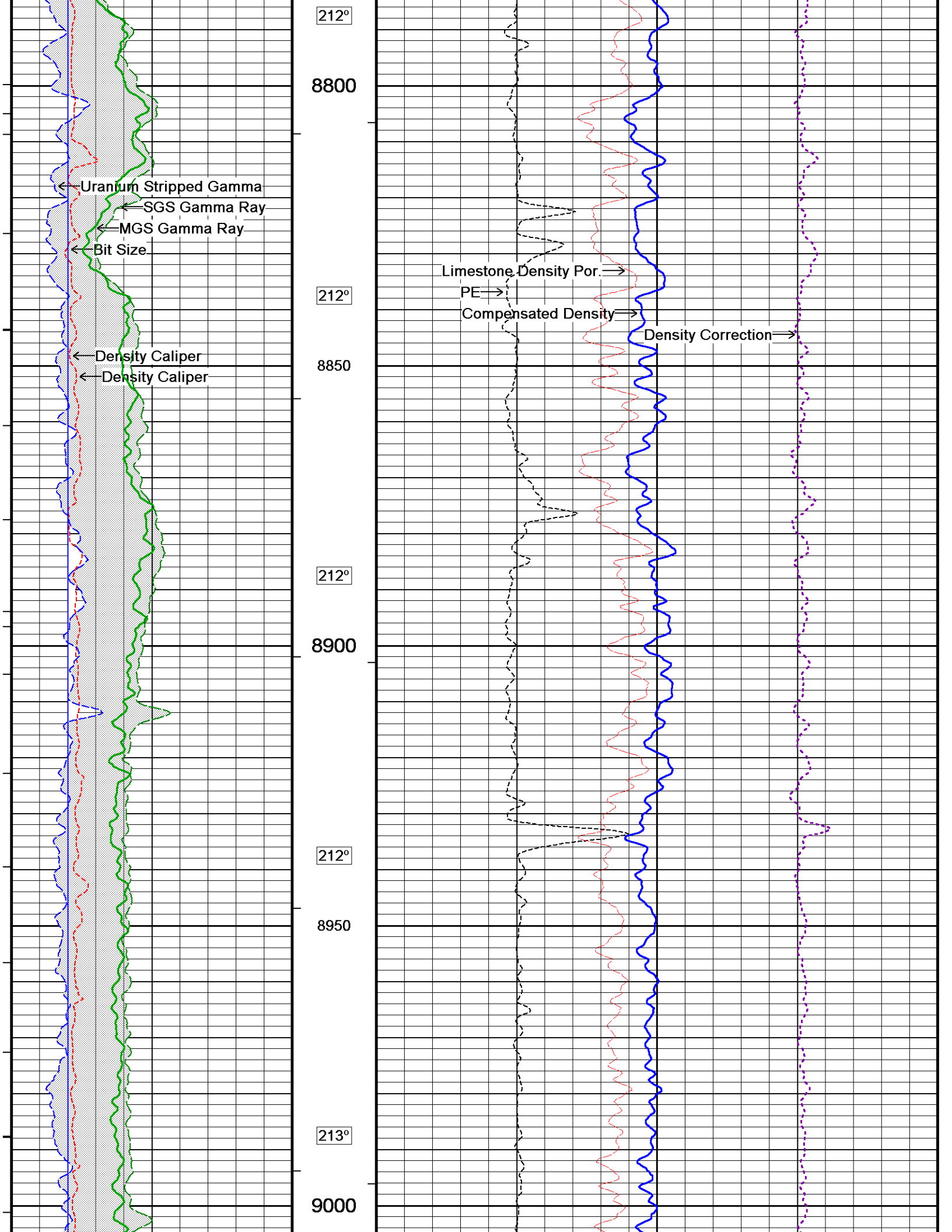

209°
7700
209°
7750
209°
7800
1000
209°
7850
209°
7900

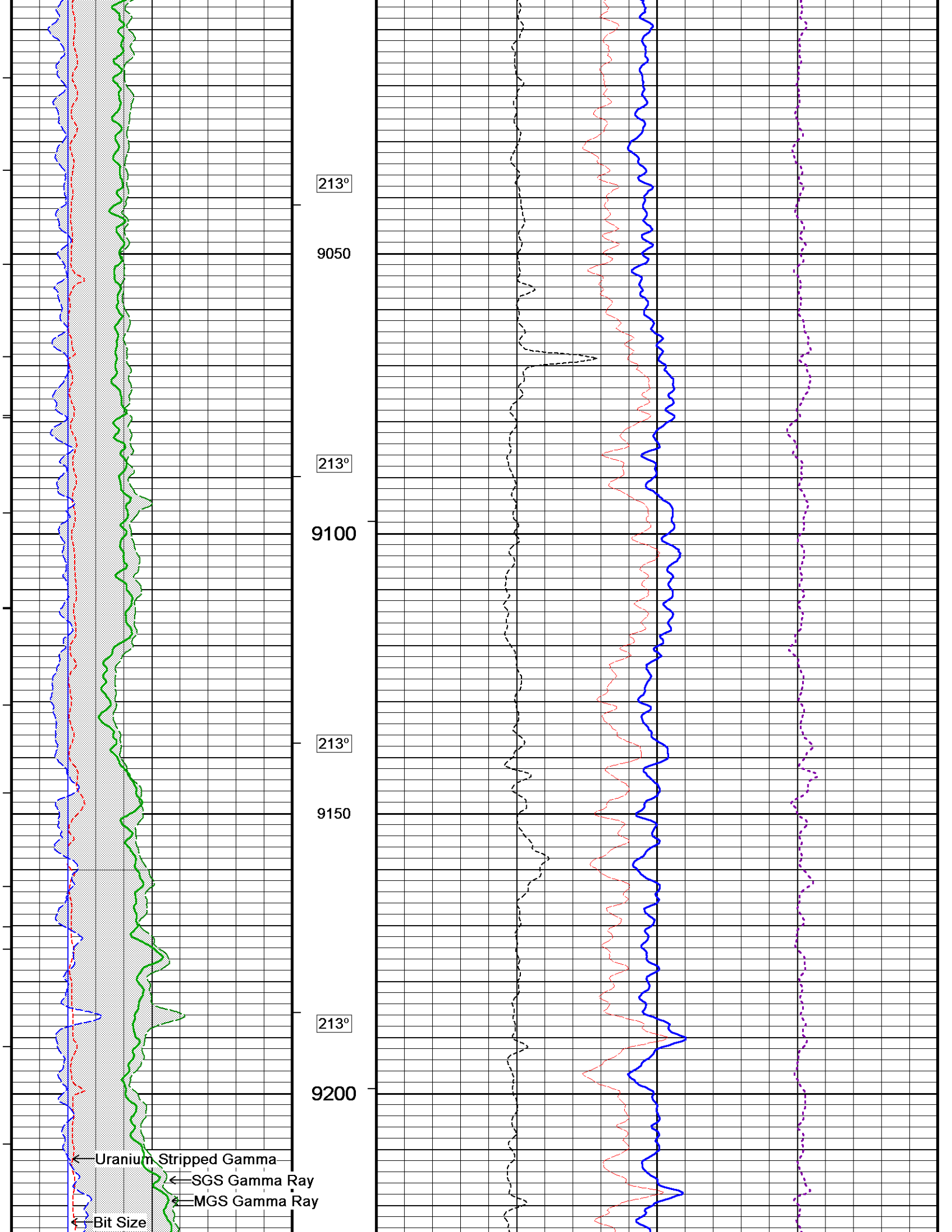

209°
7950
210°
8000
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
210°
Bit Size
Limestone Density Por.
PE
8050
Compensated Density
Density Correction
Density Caliper
Density Caliper
210°
8100

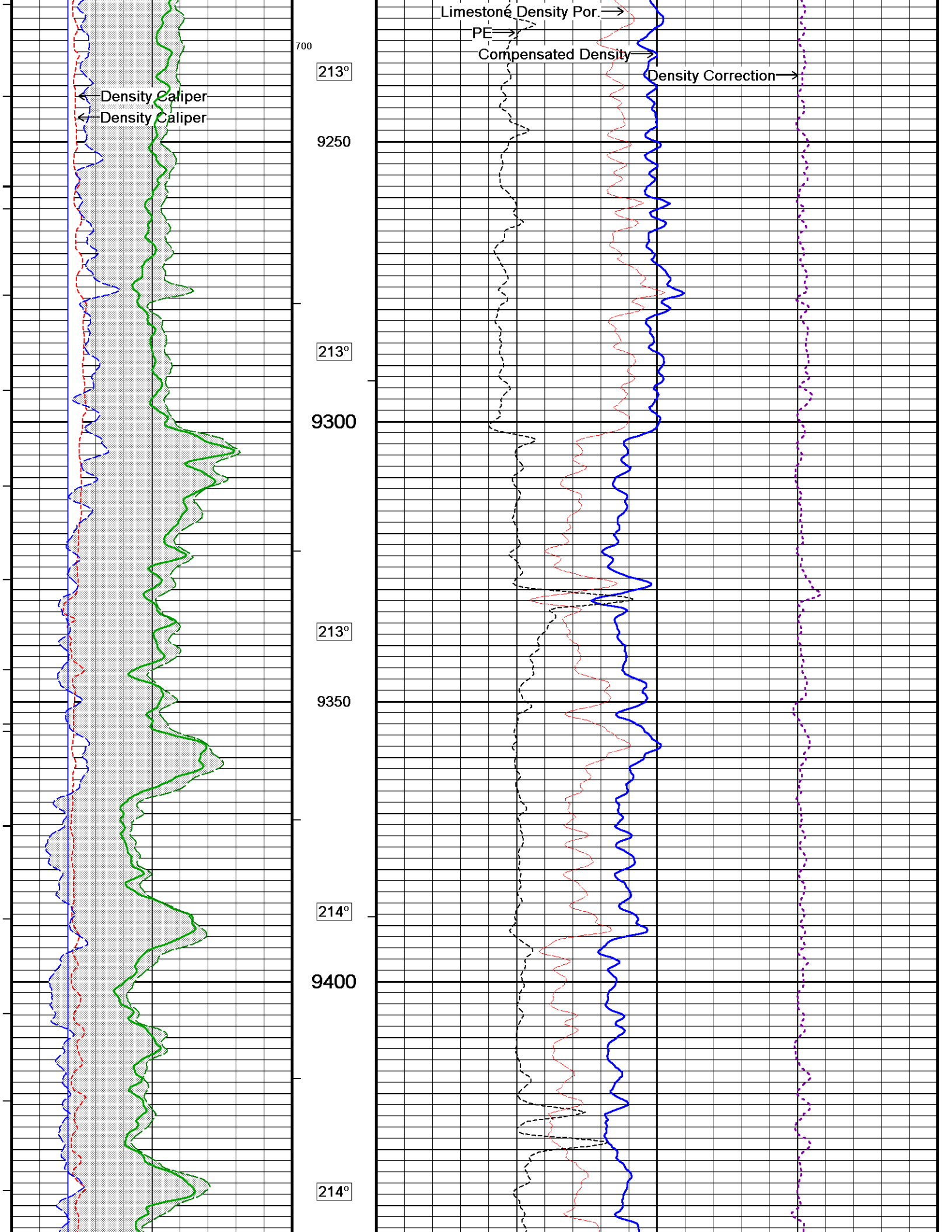

210°
8150
210°
8200
210°
8250
211°
900
8300
211°

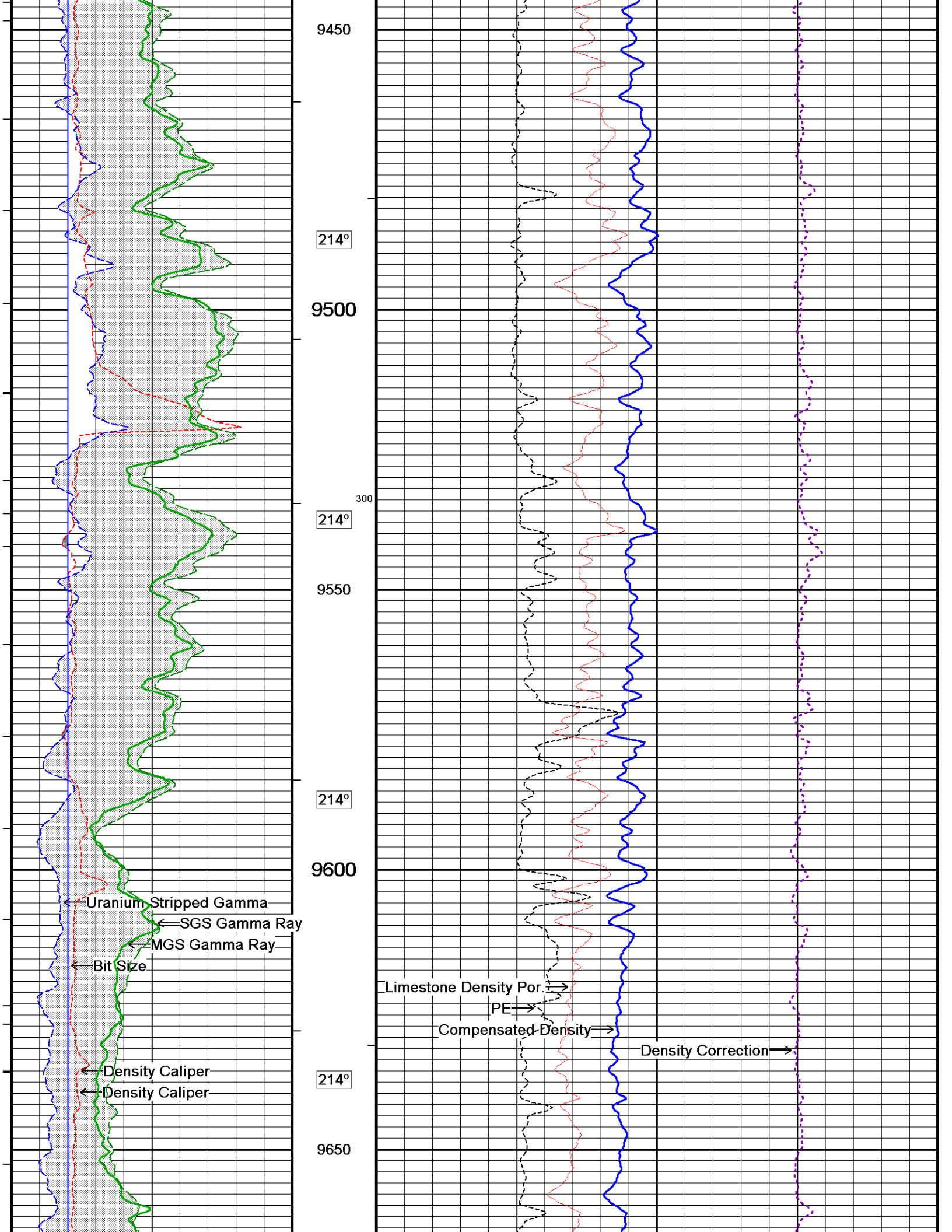

8350
211°
8400
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
211°
Limestone Density Por.
PE
Compensated Density
8450
Density Correction
Density Caliper
Density Caliper
211°
8500
211°
8550

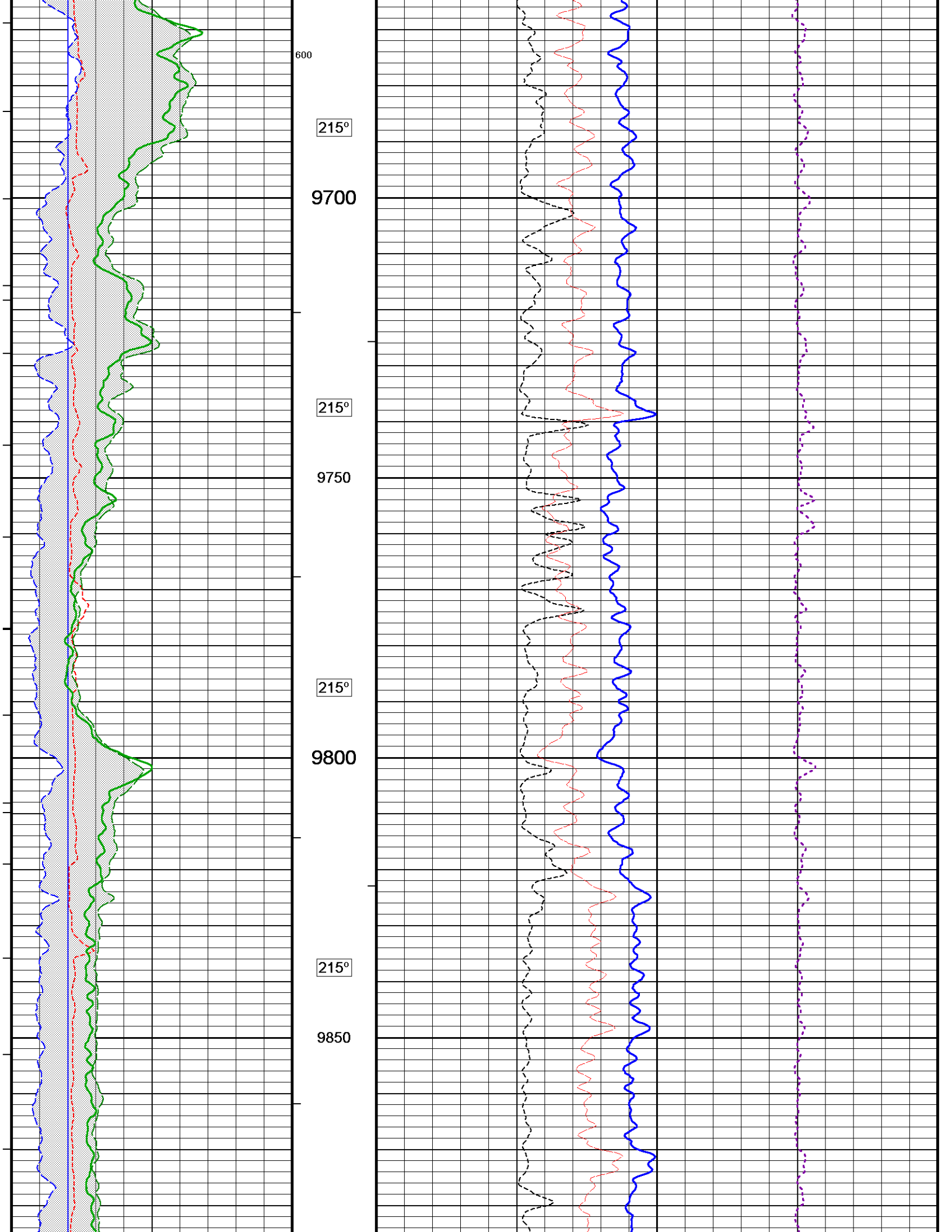

212°
8600
400
212°
8650
212°
8700
212°
8750
800

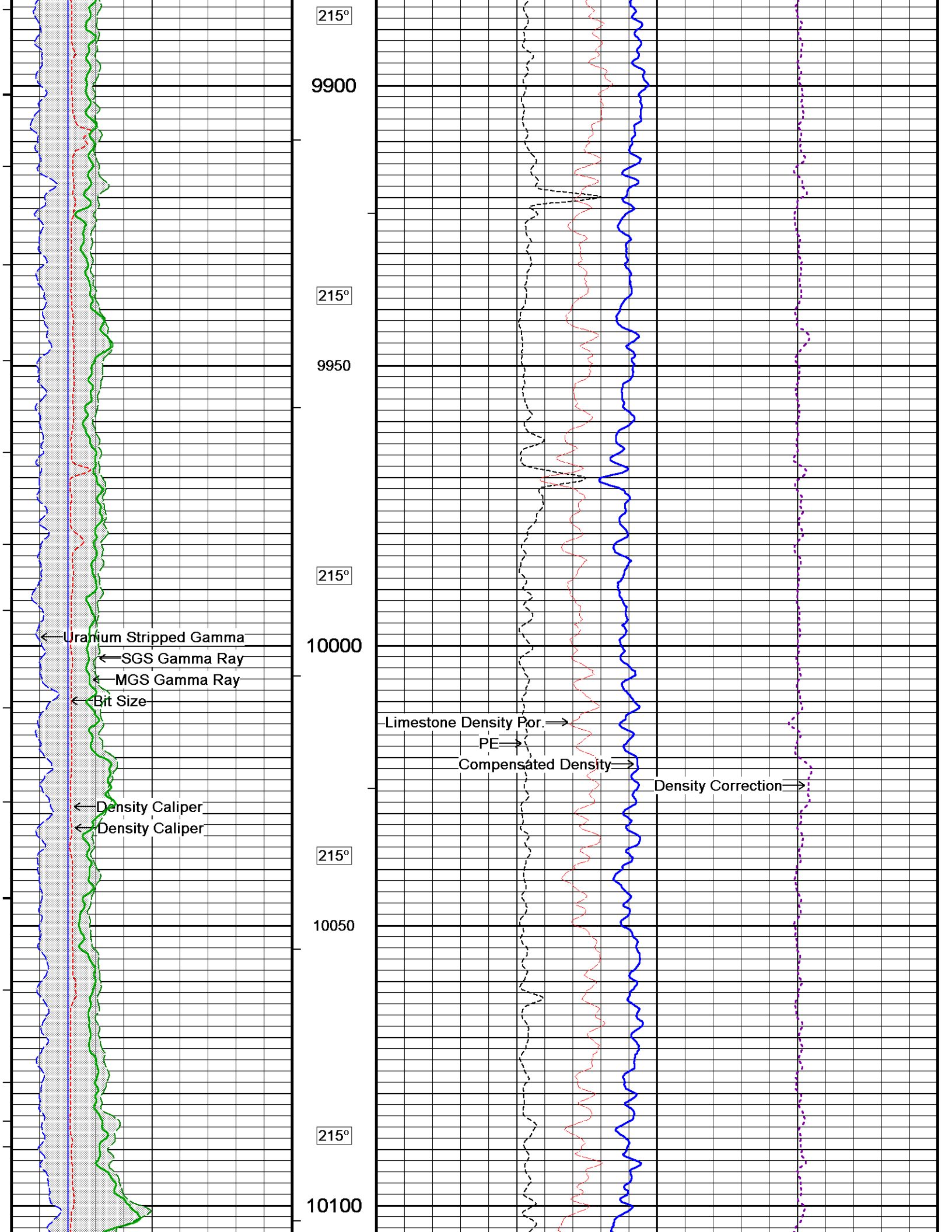

212°
8800
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Limestone Density Por.
PE
Compensated Density
Density Correction
212°
Density Caliper
Density Caliper
8850
212°
8900
212°
8950
213°
9000

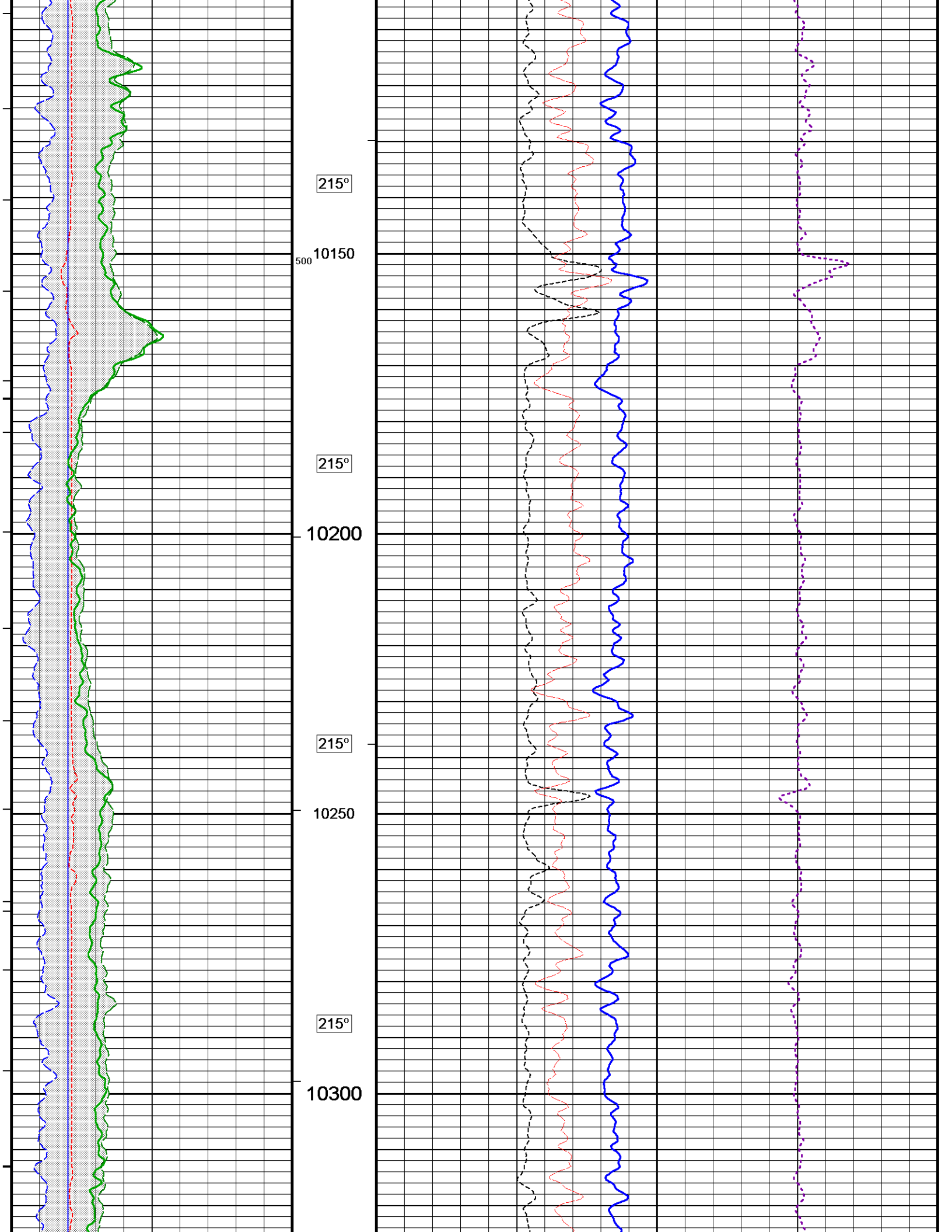

213°
9050
213°
9100
213°
9150
213°
9200
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size

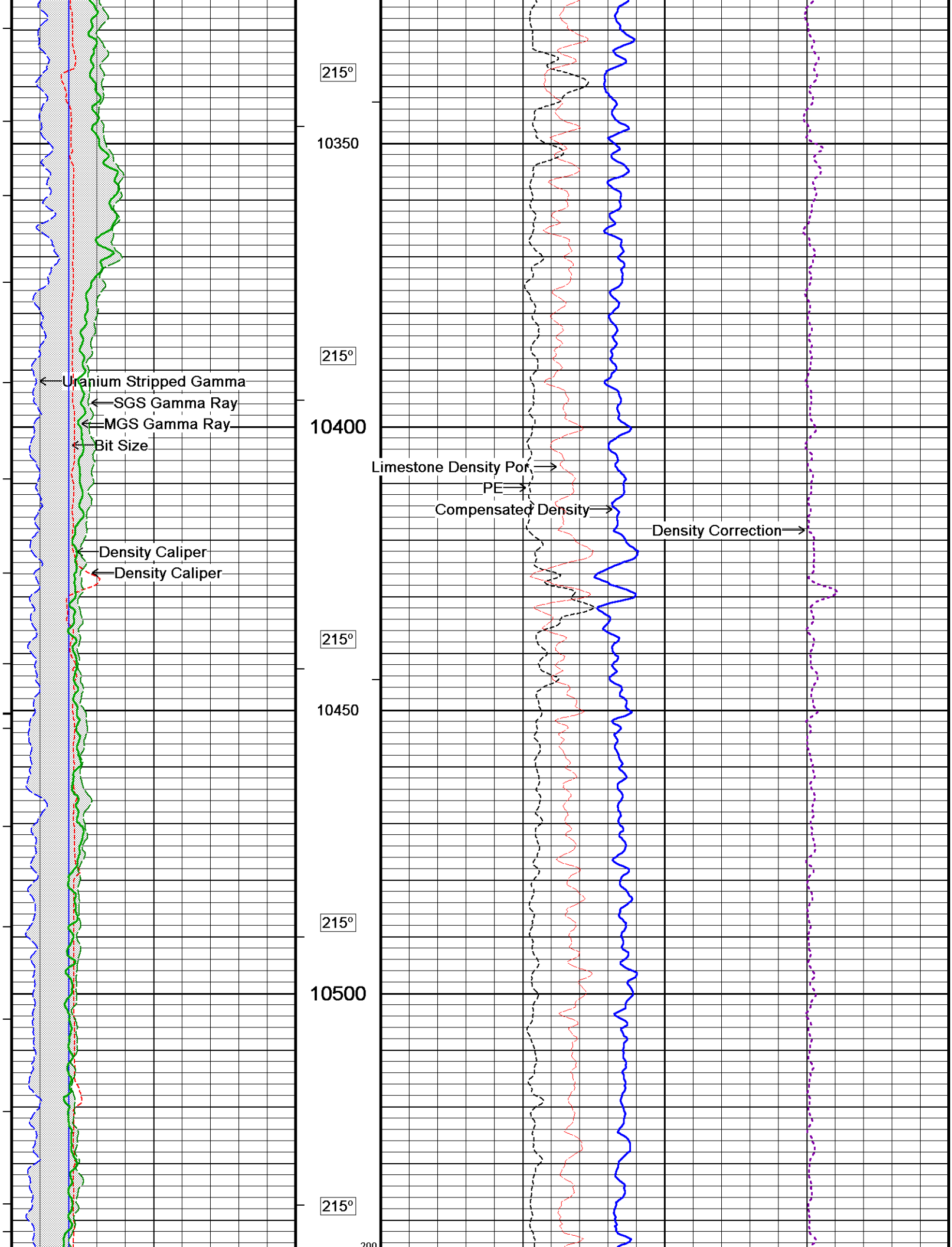

Limestone Density Por.
PE
Compensated Density
Density Correction
Density Caliper
Density Caliper
700
213°
9250
213°
9300
213°
9350
214°
9400
214°

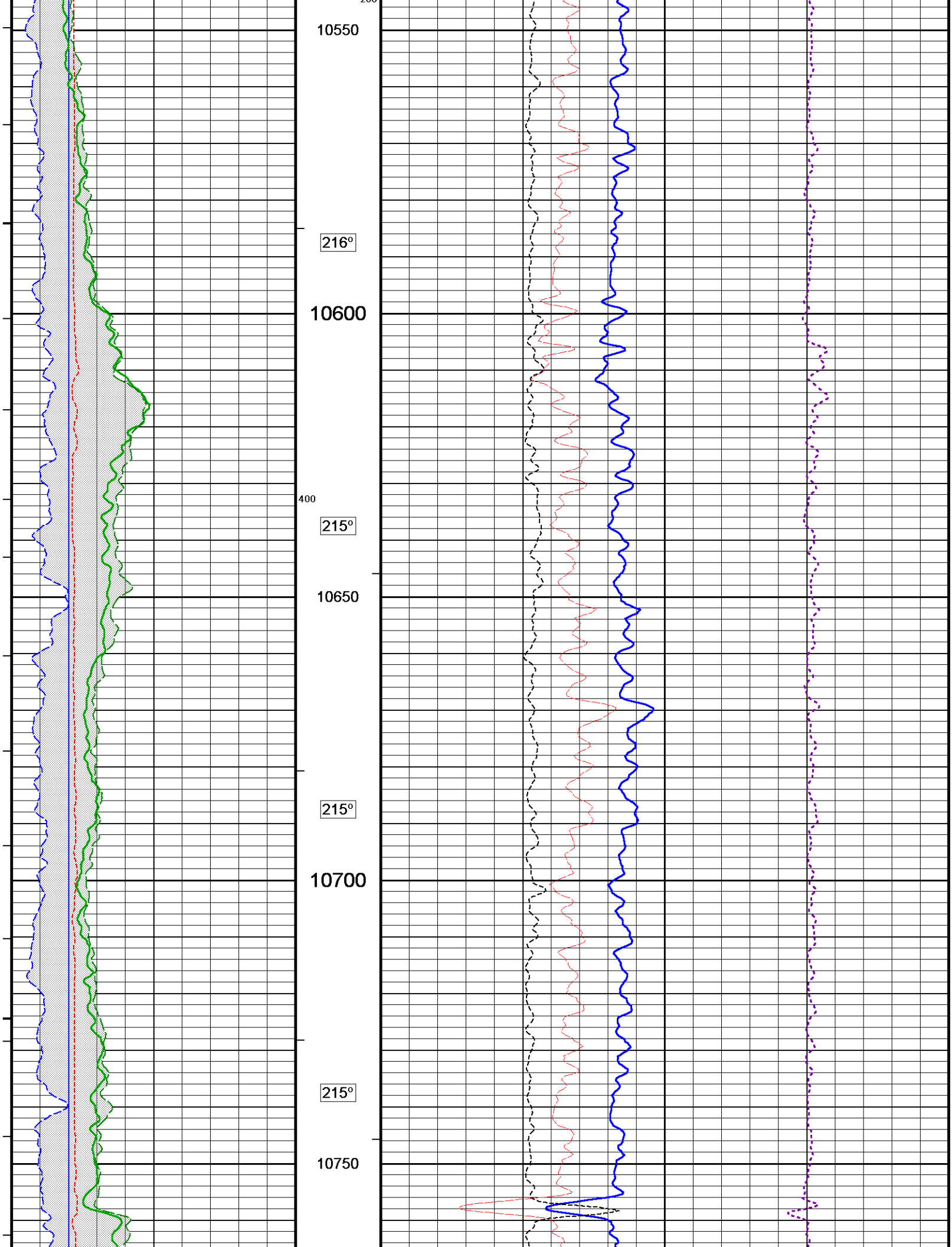

9450
214°
9500
300
214°
9550
214°
9600
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Limestone Density Por
PE
Compensated Density
Density Correction
Density Caliper
Density Caliper
214°
9650

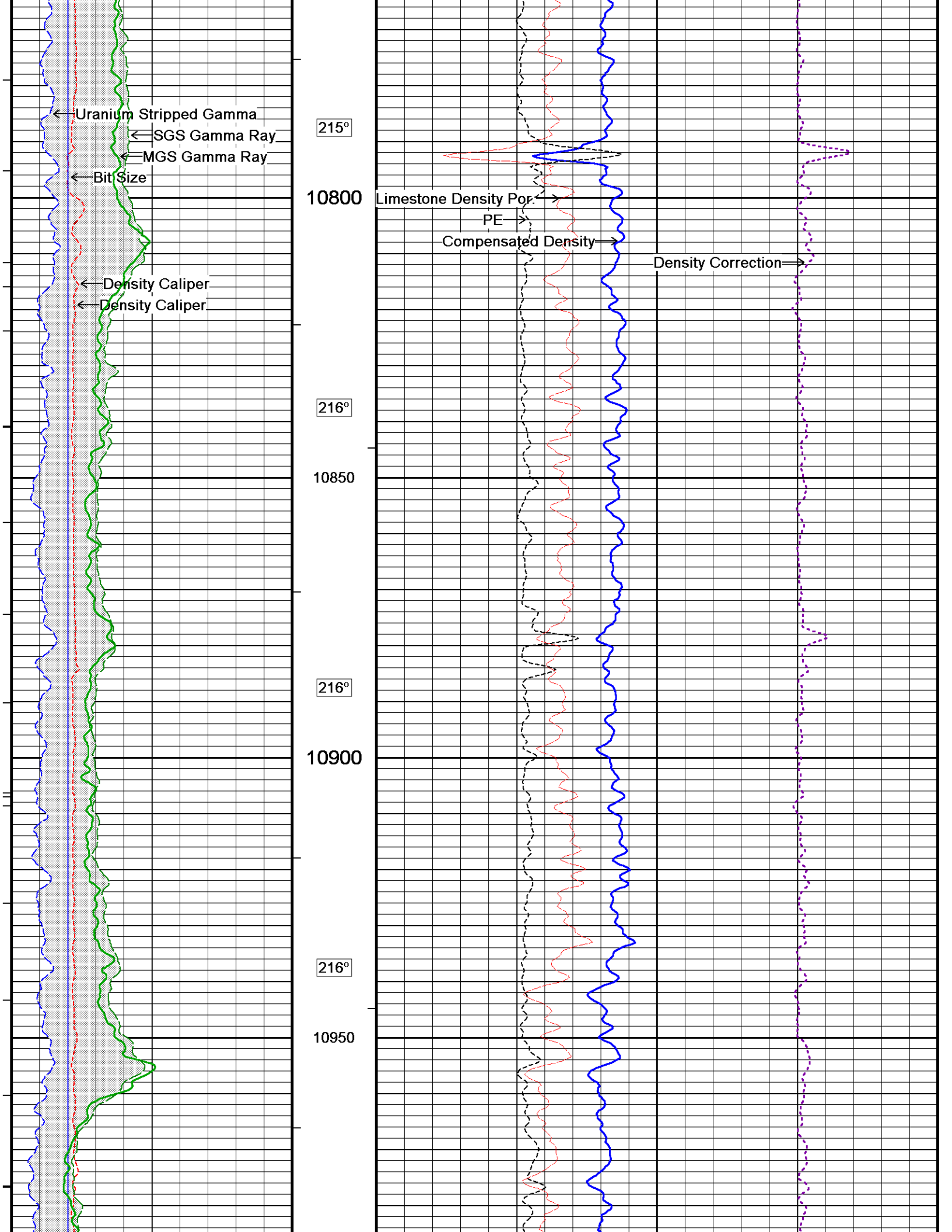

600
215°
9700
215°
9750
215°
9800
215°
9850

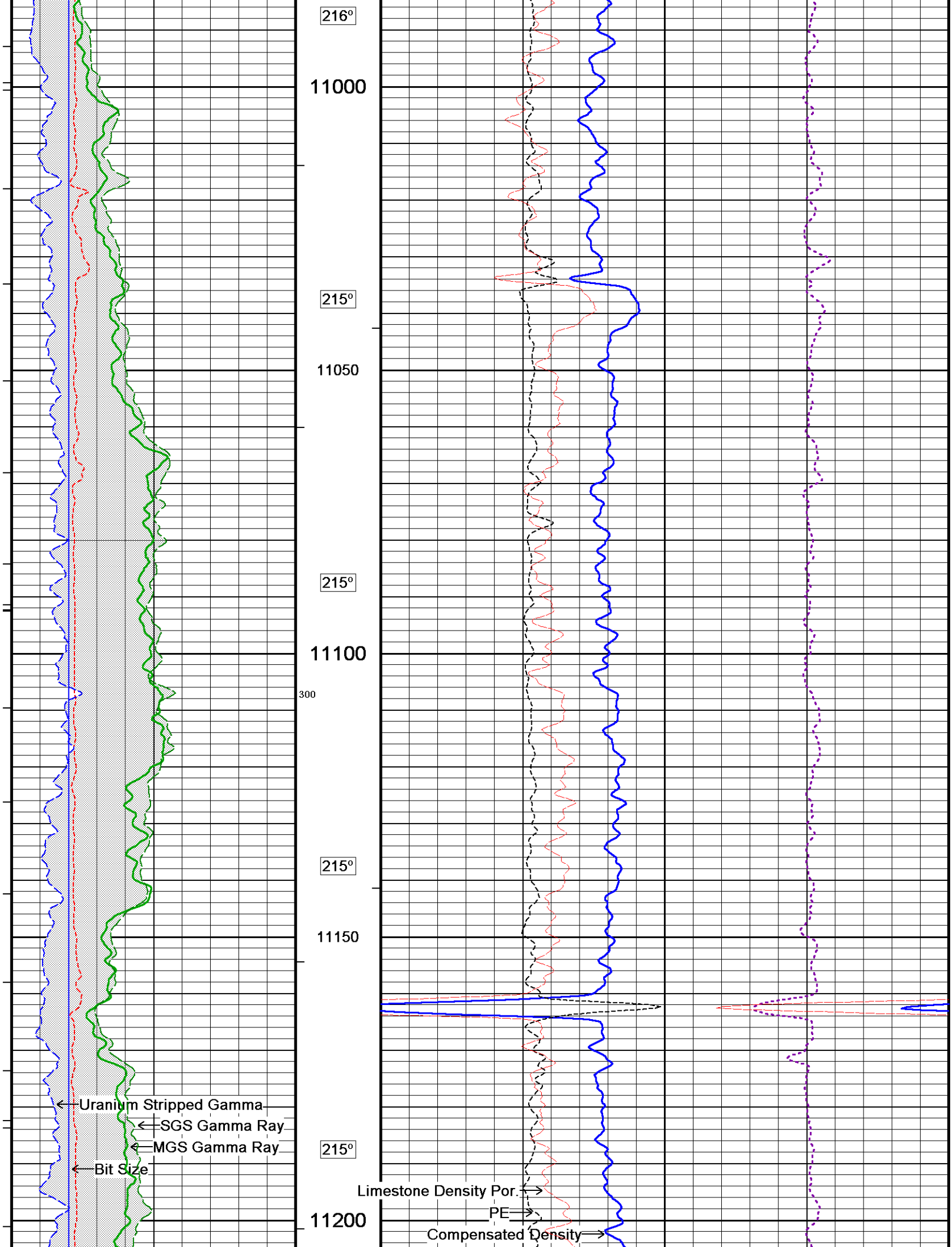

215°
9900
215°
9950
215°
10000
215°
10050
215°
10100
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
Limestone Density Por.
PE
Compensated Density
Density Correction

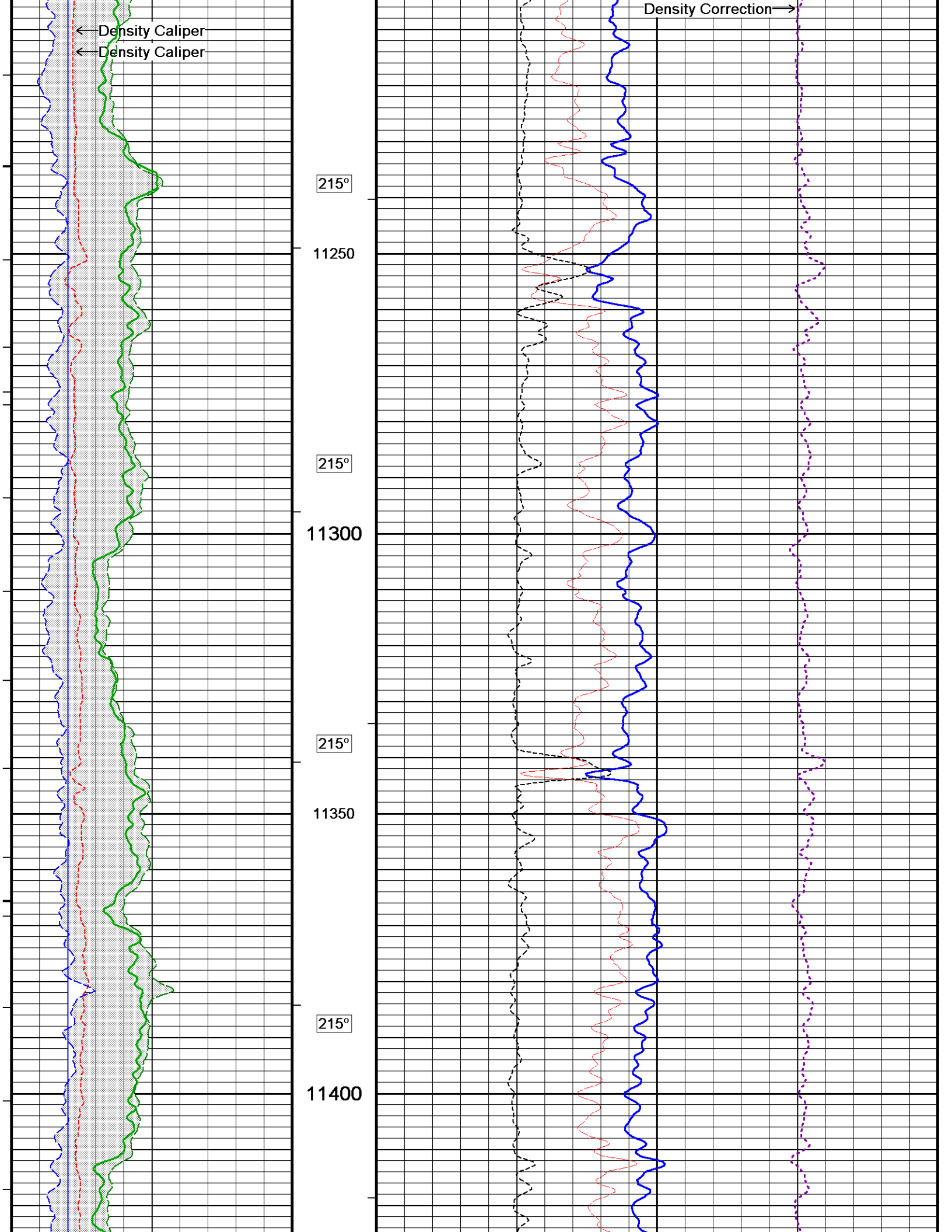

215°
500
10150
215°
10200
215°
10250
215°
10300

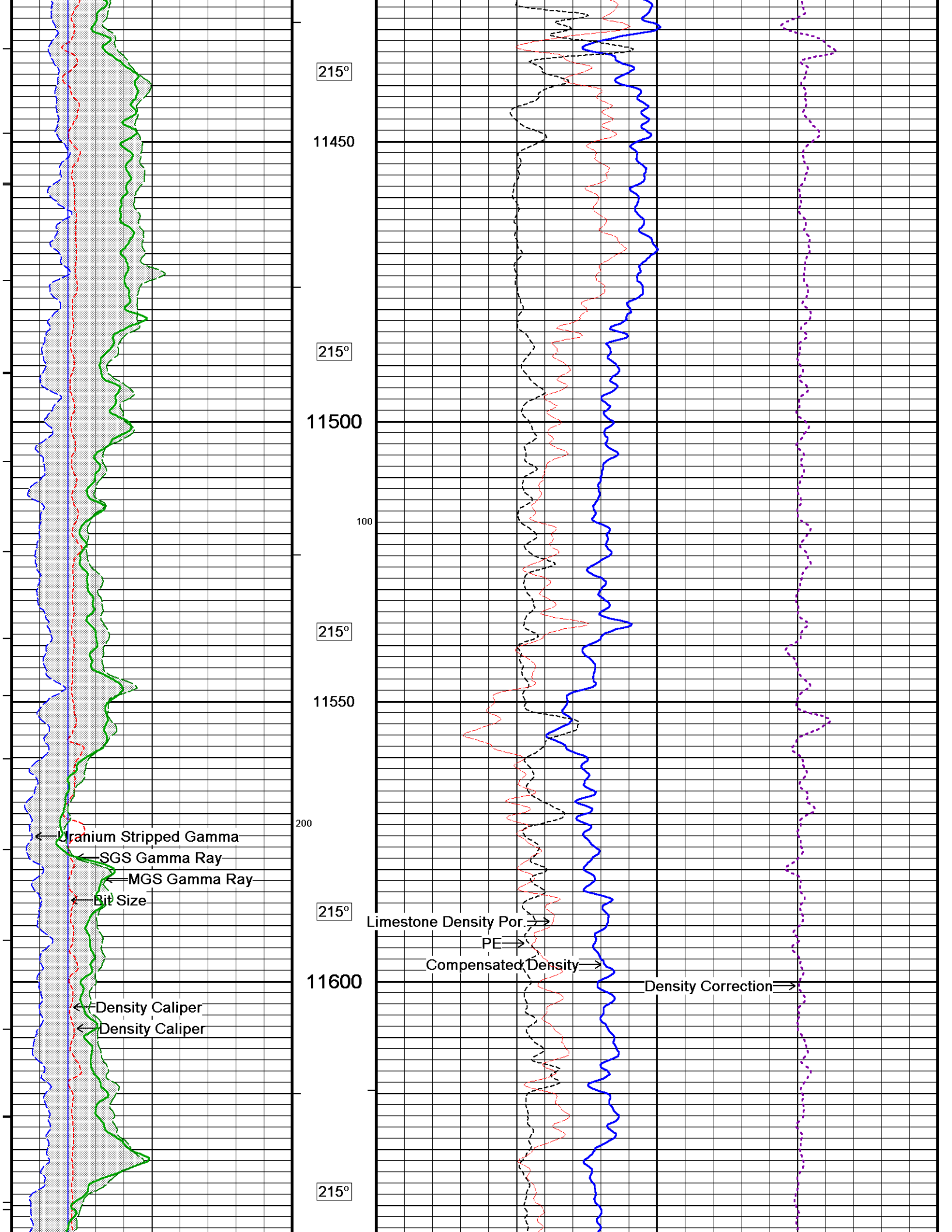

215°
10350
215°
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
10400
Limestone Density Por
PE
Compensated Density
Density Correction
Density Caliper
Density Caliper
215°
10450
215°
10500
215°

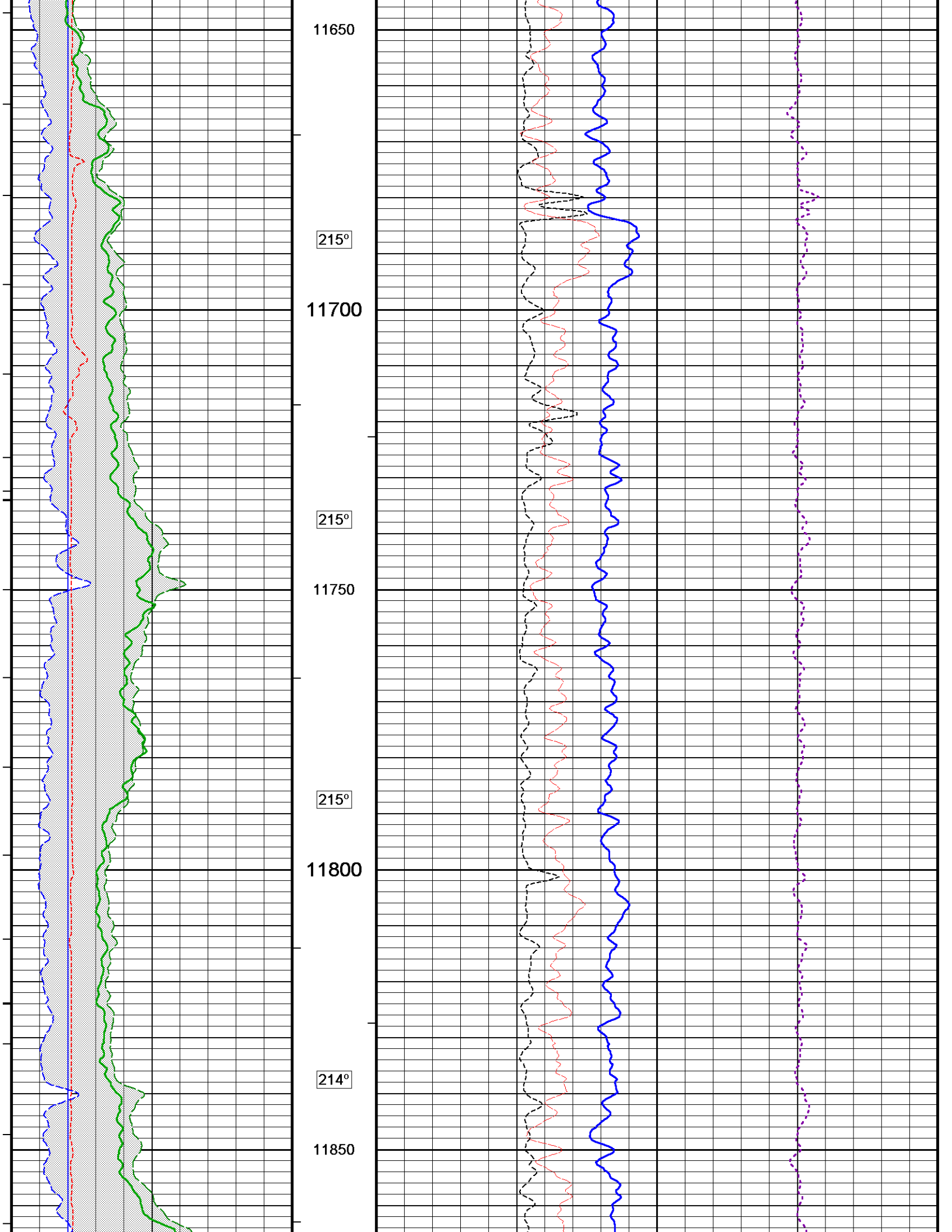

10550
216°
10600
400
215°
10650
215°
10700
215°
10750

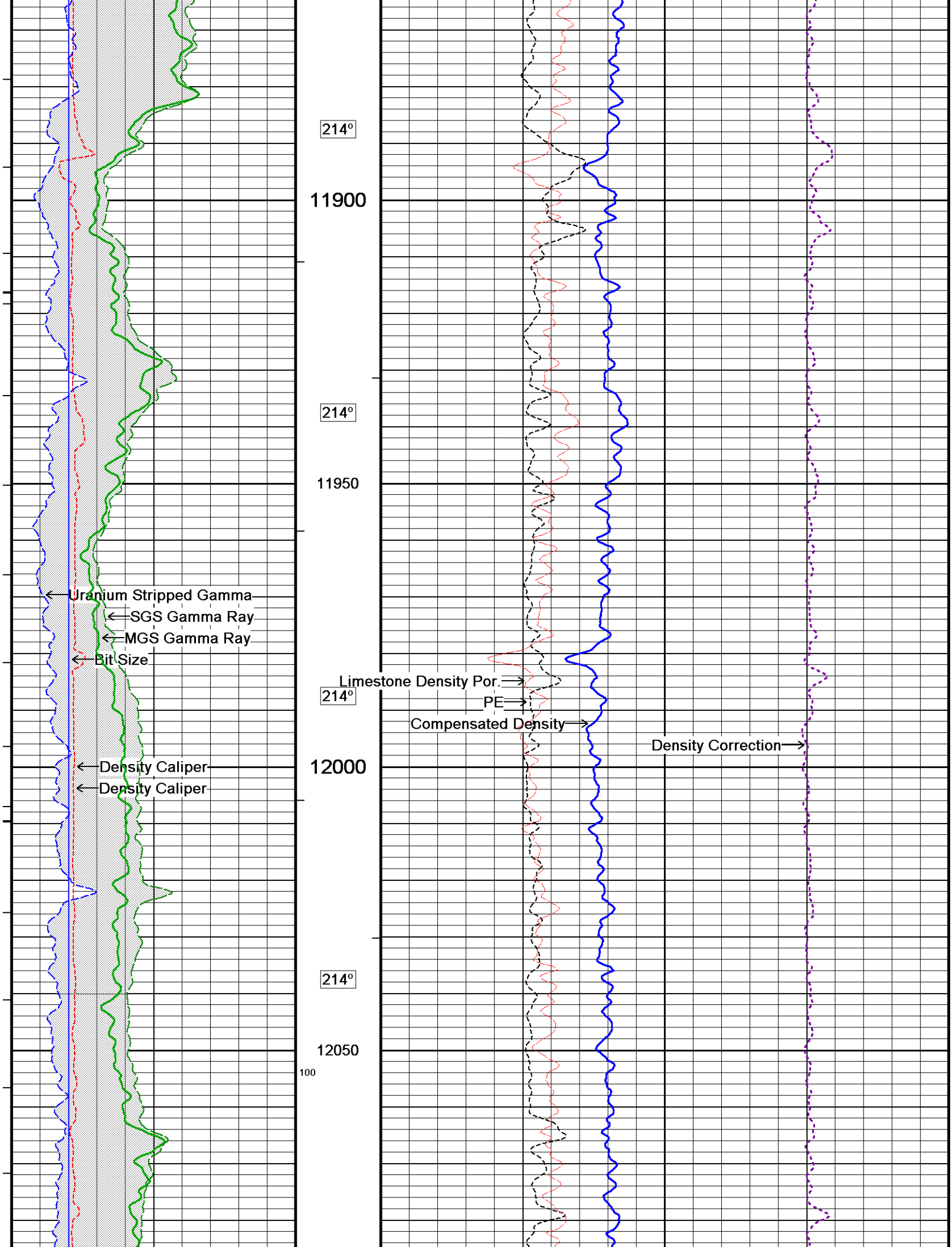

Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
215°
10800
Limestone Density Por.
PE
Compensated Density
Density Correction
216°
10850
216°
10900
216°
10950

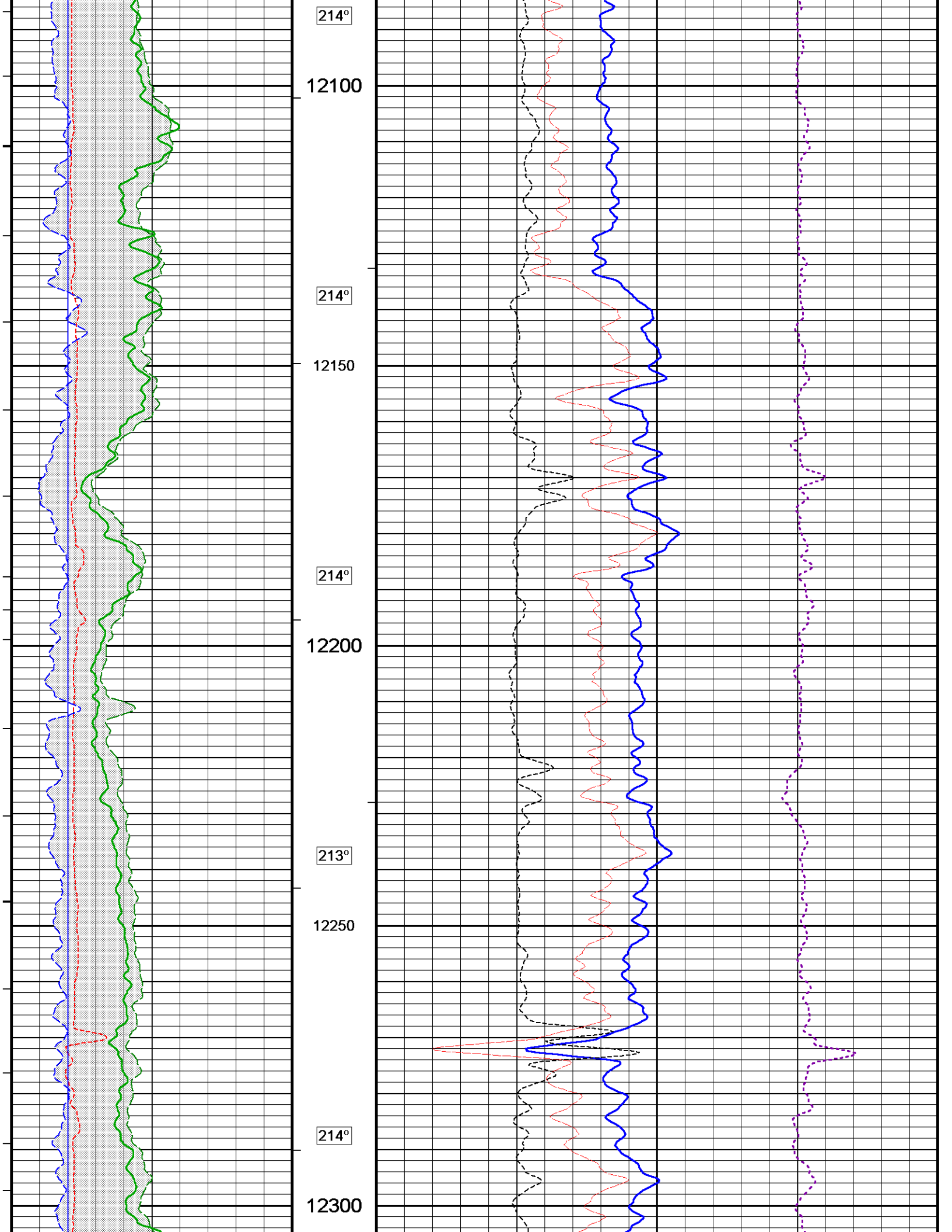

216°
11000
215°
11050
215°
11100
300
215°
11150
215°
11200
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Limestone Density Por.
PE
Compensated Density

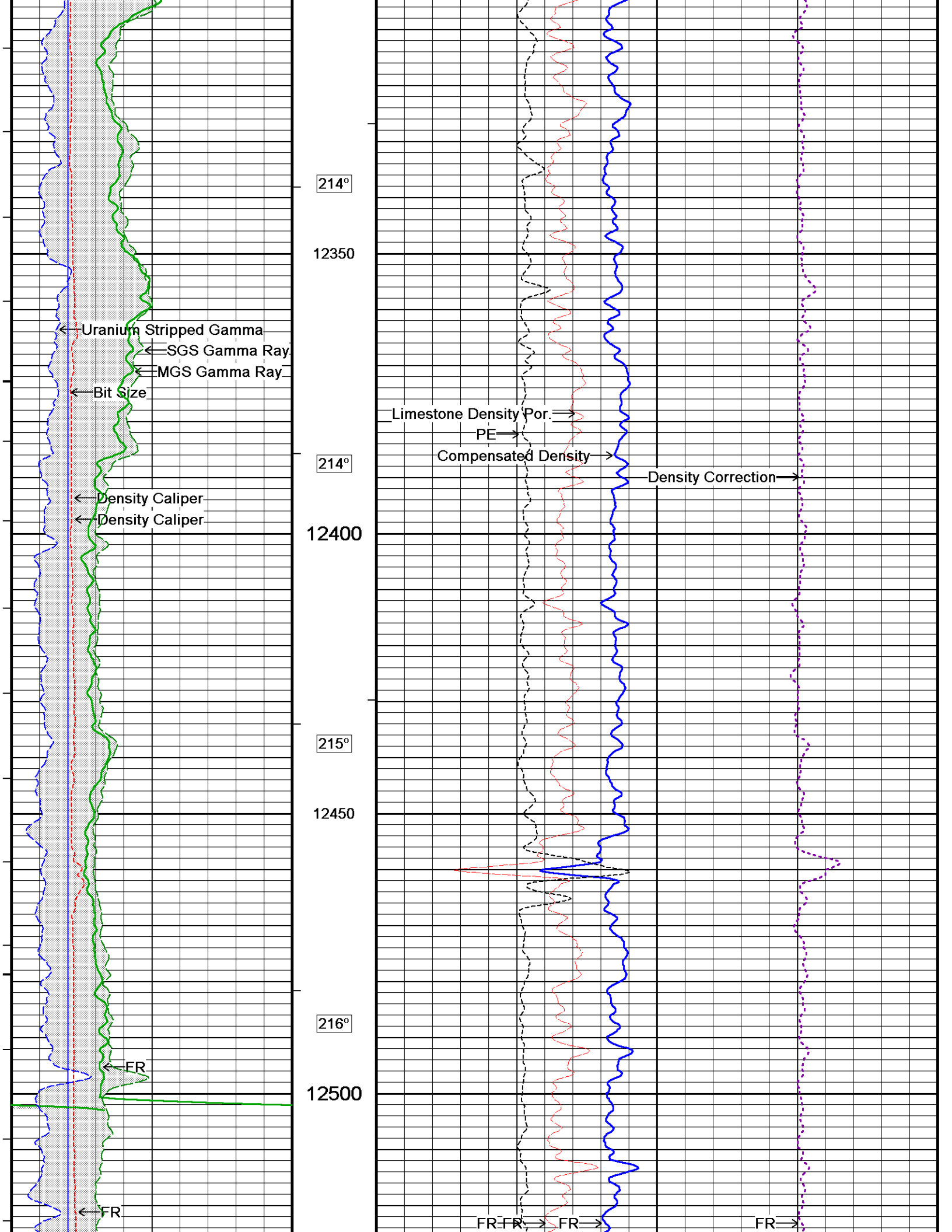

←Density Caliper
←Density Caliper
Density Correction→
215°
11250
215°
11300
215°
11350
215°
11400

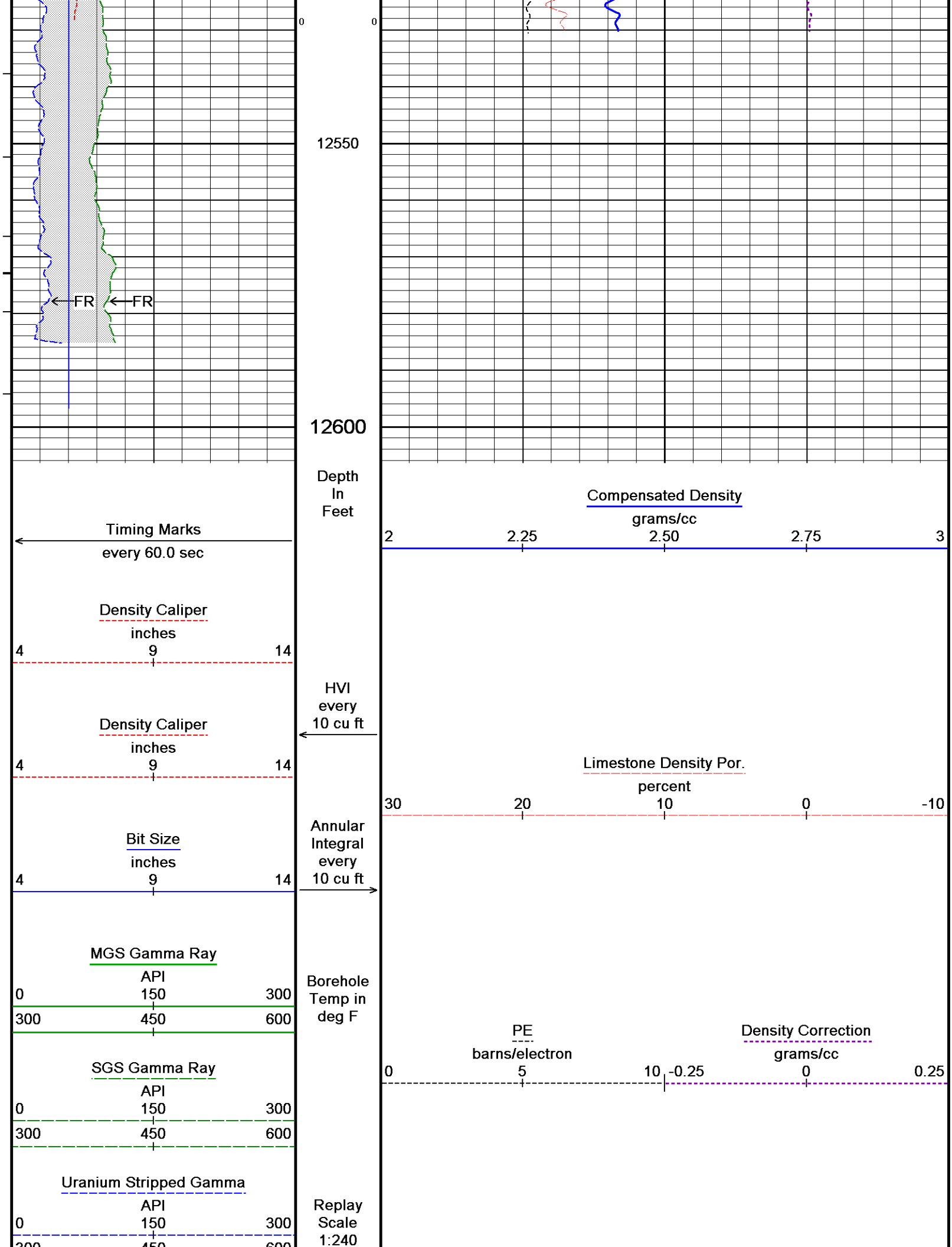

215°
11450
215°
11500
100
215°
11550
200
215°
11600
215°
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
Limestone Density Por
PE
Compensated Density
Density Correction


11650
215°
11700
215°
11750
215°
11800
214°
11850


214°
11900
214°
11950
214°
12000
214°
12050
100
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Density Caliper
Density Caliper
Limestone Density Por.
PE
Compensated Density
Density Correction


214°
12100
214°
12150
214°
12200
213°
12250
214°
12300


214°
12350
Uranium Stripped Gamma
SGS Gamma Ray
MGS Gamma Ray
Bit Size
Limestone Density Por.
PE
Compensated Density
214°
Density Correction
Density Caliper
Density Caliper
12400
215°
12450
216°
ER
12500
FR
FR FR
FR
FR


0
0
12550
FR
FR
12600
Depth
In
Feet
Timing Marks
every 60.0 sec
Compensated Density
grams/cc
2
2.25
2.50
2.75
3
Density Caliper
inches
4
9
14
HVI
every
10 cu ft
Density Caliper
inches
4
9
14
Limestone Density Por.
percent
30
20
10
0
-10
Bit Size
inches
4
9
14
Annular
Integral
every
10 cu ft
MGS Gamma Ray
API
0
150
300
300
450
600
Borehole
Temp in
deg F
PE
barns/electron
0
5
10
Density Correction
grams/cc
-0.25
0
0.25
SGS Gamma Ray
API
0
150
300
300
450
600
Uranium Stripped Gamma
API
0
150
300
Replay
Scale
1:240

CWS MEMORY LOG DSC

BEFORE SURVEY CALIBRATION

F:\Razor 26k-2306b\cmitsgs_008.dta

General Constants All 000

Last Edited on 21-JAN-2014,12:29

General Parameters		
Mud Resistivity	1.000	ohm-metres
Mud Resistivity Temperature	80.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Sandstone Density Por.	
Resistivity used	Array Ind. Four Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	

High Resolution Temperature Calibration MGS-D.A 216

Field Calibration on 25-JUN-2013,14:57

	Measured	Calibrated(Deg F)
Lower	77.00	77.00
Upper	300.00	300.00

High Resolution Temperature Constants MGS-D.A 216

Last Edited on 25-JUN-2013,14:57

Pre-filter Length	11

Gamma Calibration MGS-D.A 216

Field Calibration on 19-JAN-2014 17:48

	Measured	Calibrated (API)
Background	121	79
Calibrator (Gross)	1374	905
Calibrator (Net)	1253	826

Gamma Constants MGS-D.A 216

Last Edited on 21-JAN-2014,12:21

Gamma Calibrator Number	GRC_064	
Mud Density	1.22	gm/cc
Caliper Source for Processing	Bit Size	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Imager Pad Check MIE-A.A 152

Field Check on 06-NOV-2012 14:52

Pad 1	20/20 Buttons Verified	Pad 5	20/20 Buttons Verified
Pad 2	24/24 Buttons Verified	Pad 6	24/24 Buttons Verified
Pad 3	20/20 Buttons Verified	Pad 7	20/20 Buttons Verified
Pad 4	24/24 Buttons Verified	Pad 8	24/24 Buttons Verified

Compact Micro Imager Constants MIE-A.A 152

Last Edited on 21-JAN-2014,11:24

Sonde Configuration	Imager Mode	
Arm-Pad Kit	Normal Pads (12.25 in)	
Arm-Pad Kit Serial Number		
Centre Pad 1 Rotational Offset	0.00	degrees
Image/Borehole Ovality Reference	Azimuth of Pad 1	
Non Active Buttons	Omit	

Search Angle	0.00	degrees
Correlation Interval	3.28	feet
Correlation Step	1.64	feet
Current Offset	0.0000	mAmp
Squasher Start	N/A	mAmp
Image Processing	Enabled	

Navigation Constants MIE-A.A 152

Last Edited on 06-MAY-2013,14:40

Magnetic Declination	0.00	degrees	East

Magnetometer Parameters MIE-A.A 152

Date Of Last Magnetometer Calibration 23-OCT-2013,14:04

	X Magnetometer	Y Magnetometer	Z Magnetometer
Slope	-1.000000	-1.011308	-1.009313
Offset	0.014784	-0.018048	0.011120

Magnetometer Constants MIE-A.A 152

Last Edited on

Magnetometer Calibrator Number 000

Accelerometer Parameters MIE-A.A 152

Date Of Last Accelerometer Calibration 22-OCT-2013,17:26

	X Accelerometer	Y Accelerometer	Z Accelerometer
Slope	-1.115516	-1.113946	-1.107642
Offset	0.005263	0.007295	-0.003463

Accelerometer Constants MIE-A.A 152

Last Edited on 21-JAN-2014,11:23

Accelerometer Calibrator Number 000

Accelerometer Temperature Characterisation

X Accelerometer

Serial Number	507			
Calibration Date	17-Dec-2007			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	2.33131e-005	-3.14945e-008	1.78935e-010
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.78190e-004	5.47258e-007	-2.50879e-010

Y Accelerometer

Serial Number	493			
Calibration Date	17-Dec-2007			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	-1.45357e-005	1.15075e-008	1.28767e-010
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.78988e-004	5.43234e-007	-1.61097e-010

Z Accelerometer

Serial Number	477			
Calibration Date	17-Dec-2007			
	B0	B1	B2	B3
Bias(g)	0.00000e+000	1.79322e-005	-8.77826e-009	6.28113e-011
	SF0	SF1	SF2	SF3
Scale Factor(mA/g)	3.00000e+000	2.74904e-004	6.33380e-007	-4.25536e-010

Caliper Calibration MIE-A.A 152

Base Calibration on 21-JAN-2014,11:22
Field Calibration on 21-JAN-2014 12:19

Base Calibration

Reading No	Pads 1-5 Meas.	Pads 3-7 Meas.	Calibrator Size (in)
1	23924	24299	5.96
2	34363	34920	7.98
3	44375	44525	9.94
4	55279	55401	11.90
5	0	0	0.00

Reading No	Pad 2 Meas.	Pad 4 Meas.	Pad 6 Meas.	Pad 8 Meas.	Calibrator Size (in)
1	24409	24570	25315	24442	5.96
2	33087	33317	33733	33230	7.98
3	41703	41529	42192	41868	9.94
4	50890	51070	51451	50730	11.90

5	0	0	0	0	0.00

Field Calibration

Measured Pads 1-5 Caliper(in)	Measured Pads 3-7 Caliper(in)	Actual Caliper(in)
6.09	6.01	5.96

Measured Pad 2 Caliper(in)	Measured Pad 4 Caliper(in)	Measured Pad 6 Caliper(in)	Measured Pad 8 Caliper(in)	Actual Caliper(in)
3.02	3.00	2.98	3.01	5.96

Caliper Constants MIE-A.A 152

Last Edited on 30-DEC-2011,10:36

Caliper Difference for BRKT	0.120	inches

Caliper Calibration MPD-D.A 410

Base Calibration on 03-DEC-2013,15:21
Field Calibration on 19-JAN-2014 17:37

Base Calibration

Reading No	Measured	Calibrator Size (in)
1	16379	4.01
2	25748	5.96
3	35807	7.98
4	45926	9.94
5	56769	11.90
6	N/A	N/A

Field Calibration

Measured Caliper (in)	Actual Caliper (in)
7.95	7.98

Photo Density Calibration MPD-D.A 410

Base Calibration on 21-JAN-2014,12:24
Field Check on 21-JAN-2014,12:26

Density Calibration

Base Calibration	Measured Near	Measured Far	Calibrated (sdu) Near	Calibrated (sdu) Far
Reference 1	41720	14361	53325	19319
Reference 2	20008	2370	25278	2556

Field Check at Base

1330.7	1330.4

Field Check

1331.8	1329.6

PE Calibration

Base Calibration	WS	Measured WH	Ratio	Calibrated Ratio
Background	254	1194		
Reference 1	15731	41541	0.384	0.317
Reference 2	6279	19862	0.323	0.274

Field Check at Base

254.5	1193.9

Field Check

253.6	1192.6

Density Constants MPD-D.A 410

Last Edited on 21-JAN-2014,12:23

Density Source Id	261	
Nylon Calibrator Number	DNC-D-515	
Aluminium Calibrator Number	DAC-D-515	
Density Shoe Profile	4 inch	
Caliper Source for Processing	Density Caliper	
PE Correction to Density	Not Applied	
Mud Density	1.22	gm/cc
Mud Density Z/A Multiplier	1.11	
Mud Filtrate Density	1.00	gm/cc
Dry Hole Mud Filtrate Density	1.00	gm/cc
DNCT	0.00	gm/cc
CRCT	0.00	gm/cc
Density Z/A Correction	Hybrid	

Matrix Density (gm/cc)	Depth (ft)
2.68	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

Spectral Gamma Calibration SGS-E.J 128

Base Calibration on 21-JAN-2014,12:43
Field Calibration on 21-JAN-2014,12:43

Base Calibration

Potassium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	152.7	53.5	5.8	1.8	2.9
Calibrator (Gross)	288.3	145.3	31.8	3.1	3.1
Calibrator (Net)	135.6	91.8	26.0	1.3	0.2

	K %	U ppm	Th ppm
Concentrations	5.9	0.0	0.0

Uranium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	152.7	53.5	5.8	1.8	2.9
Calibrator (Gross)	611.7	218.9	19.7	12.4	6.2
Calibrator (Net)	459.0	165.4	13.9	10.6	3.3

	K %	U ppm	Th ppm
Concentrations	0.0	16.6	0.0

Thorium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	152.7	53.5	5.8	1.8	2.9
Calibrator (Gross)	474.2	174.3	14.4	7.6	18.0
Calibrator (Net)	321.5	120.8	8.6	5.8	15.2

	K %	U ppm	Th ppm
Concentrations	0.0	0.0	44.7

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	152.7	53.5	5.8	1.8	2.9
Calibrator (Gross)	950.5	384.4	50.5	14.9	20.8
Calibrator (Net)	797.9	330.9	44.7	13.1	17.9

Field Calibration

Gamma Ray

	Measured	Calibrated (API)
Background	223	45
Calibrator (Gross)	1428	285
Calibrator (Net)	1205	240

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	152.7	53.5	5.8	1.8	2.9
Calibrator (Gross)	950.5	384.4	50.5	14.9	20.8
Calibrator (Net)	797.9	330.9	44.7	13.1	17.9

Spectral Gamma Constants SGS-E.J 128

Last Edited on 21-JAN-2014,12:40

Background Calibrator Number	440	
Mixture Calibrator Number	450	
Potassium Calibrator Number	500	
Uranium Calibrator Number	506	
Thorium Calibrator Number	503	
Mud Density	1.22	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

DOWNHOLE EQUIPMENT

F:\Razor 26k-2306b\cmitsgs_008.dta

Shuttle Running Tool 3.5")
SRT-A.A 57 LG: 6.62 ft WT: 37.5 lb OD: 2.52 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 716 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

Compact Linker 400v mbs
MLK-E.A 117 LG: 14.24 ft WT: 99.2 lb OD: 2.24 in

Compact Linker 200 v std batt w xover
MLK-D.A 104 LG: 10.55 ft WT: 30.9 lb OD: 2.24 in

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 455 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MBS-F.A 200v Compact Battery Sub
MBS-F.A 130 LG: 17.06 ft WT: 123.5 lb OD: 2.24 in

Compact Memory Sub F.A
MMS-F.A 247 LG: 5.20 ft WT: 37.5 lb OD: 2.24 in

Compact Tool Isolator sub.
MTI-B.A 49 LG: 1.54 ft WT: 13.2 lb OD: 2.24 in

Compact Short Gamma
MGS-D.A 216 LG: 3.41 ft WT: 24.3 lb OD: 2.24 in

95.68 ft GRGM - MGS Gamma Ray
93.69 ft GSXT - MGS External Temperature

Compact Collar Locator
MCL-C.A 121 LG: 3.17 ft WT: 26.5 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 581 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 582 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 722 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact Neutron
MDN-C.A 399 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

Compact Density/Caliper
MPD-D.A 410 LG: 9.59 ft WT: 90.4 lb OD: 2.24 in

69.57 ft CLDC - Density Caliper

MIS-D.B Compact Inline Bowspring sub
MIS-D.B 720 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SHA-J.B Compact Swivel Head Adaptor
SHA-J.B 549 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 580 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-E.B Compact Inline Standoff sub
MIS-E.B 718 LG: 2.14 ft WT: 15.4 lb OD: 2.24 in

SKJ-E.B Compact Knuckle Joint
SKJ-E.B 579 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

MIS-D.A Compact Inline Bowspring sub
MIS-D.A 721 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

Compact MMI Memory Section
MIM-A.A 152 LG: 4.65 ft WT: 26.5 lb OD: 2.24 in

Compact MMI Electrode Section
MIE-A.A 152 LG: 13.96 ft WT: 99.2 lb OD: 4.09 in

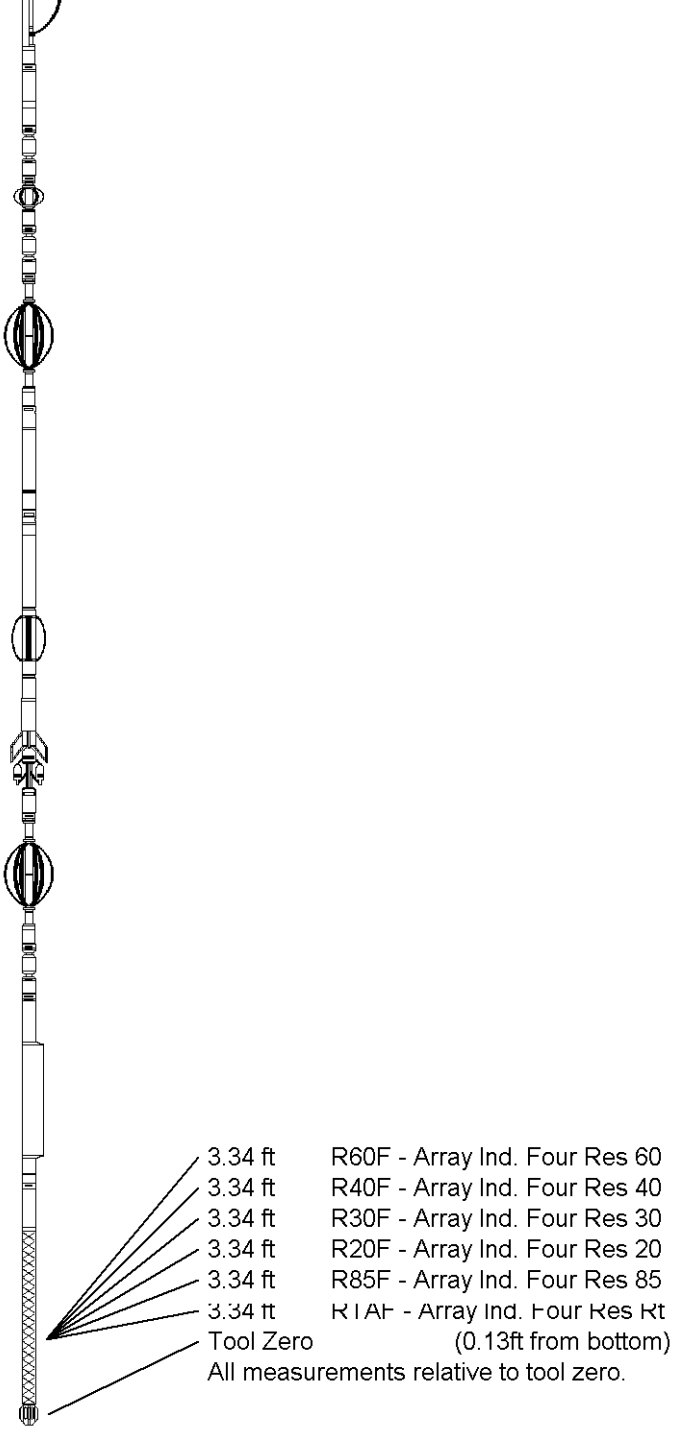
MIS-D.A Compact Inline Bowspring sub
MIS-D.A 324 LG: 5.70 ft WT: 33.1 lb OD: 2.24 in

SKJ-E.A Compact Knuckle Joint
SKJ-E.A 474 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Spectral Gamma Ray Sub
SGS-E.J 128 LG: 7.78 ft WT: 105.8 lb OD: 3.54 in

Compact Induction
MAI-C.A 401 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 156.11 ft Weight: 1142.0 lb



COMPANY	WHITING OIL AND GAS CORPORATION
WELL	RAZOR 26-2306B
FIELD	REDTAIL
PROVINCE/COUNTY	WELD
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	4759.50	feet	First Reading		feet
Elevation Drill Floor	4759.50	feet	Depth Driller	13220.00	feet
Elevation Ground Level	4737.00	feet	Depth Logger	12661.00	feet

Weatherford®

CML MESSINGER SHUTTLE
NEUTRON / DENSITY
POROSITY LOG